BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 6 1948

CHONDROMALACIA PATELLAE*

BY

CHARLES GRAY, F.R.C.S.

Honorary Orthopaedic Surgeon, Royal Free Hospital

[WITH PHOTOGRAVURE PLATE]

Degenerative changes in the knee-joint are common and often begin at an early age. The degeneration affects first and mainly the articular cartilage of the patella, and in young people is an important and common cause of disability.

Incidence

In an admirable thesis Öwre (1936) describes post-mortem examinations of many knee-joints taken from individuals who had died from causes unconnected with the knee-joint. Degenerative changes in the articular cartilage of the patella were very common even in the younger age groups. Thus of 18 cases in the age group under 20 years, 7 (39%) were found to have a degenerative change in the articular cartilage of the patella; of 32 cases in the age group 20–30, 27 (84%), of 26 cases in the age group 30–40, 25 (96%), and every case in the age group over 40, showed a degenerative change.

It appears from these observations that degeneration of the articular cartilage of the patella often begins before growth has ceased and is present in three or four of every five individuals aged between 20 and 30 and in almost every individual over the age of 30.

Öwre's youngest (post-mortem) case was 14 years. Silfverskiöld (1938) at necropsy found mild changes in the articular cartilage of the patella in 25% of subjects between the ages of 15 and 20, and he quotes a case in which chondromalacia patellae was found clinically in a boy aged 13. Bennett, Waine, and Bauer (1942) reported a series of post-mortem examinations which fully confirm Öwre's observations. Clinical experience of chondromalacia patellae has been described by many surgeons.

Clinical References

Büdinger (1906) reported 15 cases. He considered it to be of traumatic origin, and mentions the occurrence in some cases of "mirror" lesions in the femoral articular cartilage. He obtained crepitus on moving the patella passively against the femur, and believed this to be an important diagnostic sign. His treatment was excision of the degenerate cartilage.

Ludloff (1910) reported a case of a girl aged 15 with pain in the knee-joint, wasting of the quadriceps, and patello-femoral crepitus. He scraped the oedematous cartilage away, and the girl was cured.

Läwen (1925) reported 13 cases, which he treated by excision of the cartilage. He thought the lesion was probably traumatic. He also performed 44 post-mortem examinations, and found degeneration of the patellar cartilage in 26.

Fründ (1926) reported seven cases. Clinically he noted swelling of the knee-joint, painful limitation of movement, transient locking of the joint, and pain on striking the patella with the knee-joint flexed to 90 degrees but not when the knee was extended.

Aleman (1927–8) examined the articular cartilage of the patella in the course of 220 operations on the knee-joint performed for various purposes. In about one-third of these he found a degenerative lesion of the patellar cartilage, and in 20 cases it appeared to be the cause of the disability. He mentions crepitus and pain on kneeling as the main diagnostic signs.

Slowick (1935) reported two cases. The diagnosis was confirmed by operation in one case (the other patient refused operation). There was a history of injury in both cases, and in each of them *x*-ray examination revealed an erosion of the articular surfaces of the patella. In the case operated upon Slowick shaved off the degenerate cartilage. Six months later the patient had 70 degrees flexion and no pain.

Kulowski (1933) described the condition as a circumscribed primary degeneration of the articular cartilage of the patella, with fibrillation, fissuring, and erosion of the articular surface. Cartilaginous loose bodies sometimes became detached from the patella. He noted the occasional association with other lesions—e.g., tears of the semilunar cartilages. Pain, intermittent synovitis, tenderness over the patella in acute flexion, and crepitations under the patella were mentioned as the clinical features, the radiograph usually being normal. Kulowski treated his cases by curettage or complete excision of the patellar cartilage. He believed that trauma is the immediate cause of the lesion in chondromalacia of the patella, but that there is an underlying constitutional tendency to degeneration of this cartilage.

Karlson (1939) has similar views about the aetiology. Clinically he noted a feeling of stiffness in the knee, pain, especially on kneeling, "jamming" of the knee-joint, irregular jerky movement ("ratchet" movement), and crepitus from the patello-femoral joint. He operated on 36 cases, excising the degenerate areas of cartilage. Of these, 23 recovered subjectively (but their knee-joints would not tolerate strenuous exertion), 10 improved, and 3 were no better.

*Submitted for publication on Sept. 29, 1947.

Hinricsson (1939) believes that endocrine disturbance or toxaemia may cause the condition. Murstad (1927), Stören (1929), Oberneidermayr (1930), and Heizmach (1937) also refer to the condition.

I have found the condition at operation on 10 occasions, and have often diagnosed it in cases where operation was unnecessary or inadvisable. My youngest patient (operated upon) was 11 years old.

This frequent occurrence of degeneration at an early age is a remarkable phenomenon which cannot be completely explained. Cartilage in all situations is particularly susceptible to injury because, being avascular, it is incapable of repair. The patellar cartilage is especially vulnerable because of its thickness, and it is constantly subjected to trauma by movements of the knee-joint, most of all during active extension, when the quadriceps holds the patella tightly against the femur. Because of its shape the inner facet is, of the two, the more likely to be affected (Wiberg, 1941). It has a slightly convex surface opposed to the convex surface of the internal condyle of the femur. The outer facet fits more accurately, having a concave surface which receives the convex femoral surface.

Morbid Anatomy

The degeneration is progressive. The early changes are oedema, alteration of colour, and striation of the cartilage. The oedema is circumscribed and causes a nodular bumpy appearance of the articular surface (Plate, Fig. 1). It affects only a part of the surface, occurring more often on the inner facet than on the outer. If both facets are affected the changes are usually more pronounced on the inner side. The oedematous area feels soft to the touch, in contrast with the firm consistency of normal articular cartilage. The affected cartilage loses its bluish sheen and becomes lacklustre and faintly yellow. In the oedematous area and also above and below it fine vertical striations occur in cartilage which is otherwise apparently normal.

Ulceration of the cartilage is the next stage. A part of the oedematous area is superficially eroded (Figs. 2, 3, and 4). The floor of the ulcerated zone has a velvety appearance. In time the ulcer becomes deeper, and eventually the entire thickness of the cartilage is destroyed, exposing the subchondral bone.

Proliferation of cartilage may occur either alone or in association with ulceration. Tufts and twigs of degenerate cartilage project above the general level of the articular surface (Figs. 5 and 6).

In some instances a part of the articular cartilage is broken into flat laminae which overlap one another like the tiles on a roof (Fig. 7).

Occasionally a single pedunculated lamina is elevated as a flap from the articular surface (Fig. 8). This had occurred in one of my cases, and at operation the flap could be seen to fold back during extension of the joint from the flexed position. It had obviously been responsible for the momentary locking of the joint which had been described by the patient.

"Mirror" lesions occur on the femoral condyles. As they are produced by friction against the patellar lesions they are more frequent on the internal condyle of the femur. The "mirror" lesions consist of striation and superficial ulceration of the femoral cartilage in a circumscribed area. Frequently the synovial membrane near the edges of the patella is thickened and injected, and the infrapatellar pad of fat is slightly hypertrophied. At first strictly localized, the condition in later life becomes part of a generalized degeneration of the joint—osteoarthritis.

Radiological Examination: Histology

The *x*-ray film in many cases (perhaps in the majority) shows no abnormality. This is not surprising, as the bone is involved at a very late stage and then only very superficially. However, a close scrutiny of first-class films may show a characteristic abnormality of the articular surface. The film should be taken in such a way as to bring out the soft shadow of the cartilage. The following abnormalities occur: (*a*) erosion and indentation of the articular margin (Fig. 10); (*b*) a localized prominence on the articular surface (Fig. 11); and (*c*) the appearance of a pedunculated flap of cartilage (Fig. 12).

In normal patellar articular cartilage the superficial cells are arranged parallel to the surface; in the central zone they are arranged in a curved and criss-cross manner; in the deeper layers they lie in rows perpendicular to the line of calcification which separates the cartilage from the subjacent bone. In the intercellular substance fibrils are not seen.

At an early stage of the degeneration, when oedema occurs, the cells appear to be further apart, and in the intercellular substance the fibrils become obvious (Fig. 9). Fissures appear in the intercellular substance, and in some areas extensive splitting occurs. Cells may become clumped together, and individual cells appear swollen and vacuolated.

When the bone is exposed by ulceration of the cartilage absorption of the superficial layers leaves marrow spaces open to the surface, and they fill with fibrous tissue. At the margins of the ulcerated area the deeper layers of the cartilage are invaded by blood vessels, which pierce the line of calcification. Proliferating cartilage cells are grouped around these vessels. Cavities and scattered foci of ossification appear in the cartilage.

Clinical Features

It might be expected that these extensive lesions, proved at necropsy to occur so frequently, would be an important cause of disability during life; in fact, if the condition is known and looked for it is often found. It is a fairly common cause of derangement of the knee-joint.

The degeneration frequently produces no symptoms until gross destruction of the cartilage has occurred, or until imperfect recovery from an injury brings it to light. Öwre (1936) has shown that many individuals who suppose their knee-joints to be normal have some clinical signs of chondromalacia patellae and can recall, when questioned in detail, attacks of pain and effusion and momentary locking. When the condition passes from the latent to the active phase it presents itself clinically as a derangement of the knee-joint. The abnormal patella may cause pain, intermittent effusion, tenderness, derangement of motion, and crepitus. Not all these signs are present in every case.

The *pain* is the presenting feature as a rule, and is felt in or under the knee-cap. It is produced by movements which grind the patella against the femur—i.e., by active extension of the joint as in going up stairs and in rising from the sitting position. The *effusion* is usually slight. *Tenderness* is felt mainly at the edges of the patella and at the lower pole, corresponding to the inflamed synovial membrane and hypertrophied fat pads which are noted at operation and in post-mortem specimens. Tenderness of the patella in kneeling may occur. Occasionally tenderness may be elicited by tapping the patella against the lower end of the femur while the knee-joint is semi-flexed.

Flaps or tags of articular cartilage may project sufficiently to impede the smooth motion of the joint. The case illustrated in Fig. 8 is an example. This may

complained that his knee often became "stuck" during the movement of extension. This semi-locking was painful and momentary. At operation it was seen that the flap of articular cartilage sometimes became folded back upon itself during the movement of extension and subsequently unfolded during flexion. Difficulty in disengaging the fold no doubt accounted for the intermittent stiffness of the joint. A "ratchet" type of motion has been described, but this has not occurred in any of my cases.

The *crepitus* occurs particularly during the movement of extension. It may be produced also by rubbing the patella against the femur while the knee-joint is lying relaxed in the extended position. This friction usually causes a pain of the same quality as that of which the patient complains.

Treatment

For the latent case treatment is unnecessary. When disability is produced physiotherapy or a period of immobilization in plaster may alleviate it but surgical treatment is necessary for many cases. Some writers, as mentioned above, advise paring down the abnormal articular cartilage to produce a smooth surface. I prefer total excision of the patella, because it is so obviously impossible to restore properly the smoothness of the articular surface. By shaving off the degenerate cartilage it is possible in some cases to get a surface which is not grossly irregular, but it must be remembered that anything short of perfection in an articular surface subjected to compression is certain to provoke a mechanical arthritis without much delay.

At operation the patella is inspected through a short internal parapatellar incision and removed if the expected lesion is found. The incision may be extended downwards if necessary for exploration of the knee-joint proper. The result of excision of the patella should theoretically be almost perfect. In practice the cases in which I have removed the patella because of chondromalacia have all eventually had very good knee-joints, but in several instances recovery has been long delayed because of persistent weakness of the quadriceps. The weakness amounted practically to paralysis, seemed to be functional, without any organic basis, lasted several weeks, and eventually disappeared very rapidly.

Case Records

Case 1.—A nurse aged 20 complained of pain under the right knee-cap. There was no history of injury, though she remembered having a transient effusion in the knee-joint many years previously. She was a healthy girl in good general condition. There was slight wasting of the right quadriceps, tenderness over the patella, pain on rubbing the patella against the femur, and fine retropatel'ar crepitus. *X*-ray films were negative. The pain continued in spite of prolonged physiotherapy. When the knee-joint was explored an extensive oedema of the articular cartilage of the patella, with a central area of ulceration, was discovered. From the small central ulcer a wart-like button of degenerate cartilage projected and a shallow fissure ran upwards and outwards from the ulcerated area (Fig. 5). The articular cartilage of the femur was normal. The patella was excised, and she made a complete recovery.

At a routine follow-up three years later she stated that her left knee had begun to trouble her, and that she had pain under the knee-cap and in the calf. On examination of the left knee the only physical signs were crepitus and pain produced by rubbing the patella passively against the femur. *X*-ray films were negative. After three months of physiotherapy and rest had been tried unsuccessfully, the patella was excised. It was strikingly similar to that removed from the right knee-joint. The articular cartilage of the femur was normal. She made a rapid and complete recovery, and the function of both knees is now perfect.

Case 2.—A girl aged 23 complained that for several weeks her right knee had been painful on the inner side. For several years she had noticed crepitus under the knee-cap. She had injured this knee seven years previously, when the joint had locked and had to be straightened under anaesthesia. There had been six or seven attacks of momentary locking after this, the last time being about a year before I saw her. These incidents were always accompanied by pain on the inner side of the joint and followed by swelling. She was a healthy girl in good general condition. There was slight wasting of the right quadriceps, but no effusion. Tenderness was present over the centre of the internal lateral ligament, and pain and crepitus were produced by rubbing the patella against the femur. *X*-ray films were negative.

The clinical picture suggested a tear of the internal cartilage, but at operation that cartilage appeared to be normal. A very extensive lesion, however, could be seen in the patella, so the incision was enlarged upwards and the patella removed. There was extensive oedema of the articular cartilage of the patella. In the upper part of this oedematous area fine superficial vertical fissures were observed. At the centre of the articular surface the cartilage was broken up by deep fissures into overlapping laminae, and in the lower part of the articular surface there was an intricate exfoliation of tufts of degenerate cartilage (Fig. 7). On the outer condyle of the femur there was a small "mirror" lesion, with ulceration of the articular cartilage and a few protuberant tufts of cartilage, which were pared off. This patient made a complete recovery.

Case 3.—This patient was a girl aged 19. Five years previously her left knee had given way while she was doing a backward bend during physical training. She was away from school on this account for two weeks, and wore "elastoplast" strapping on the knee for several months. Three months after this injury she fell off her bicycle and bruised the knee. Since these injuries it had been almost constantly painful, and there was occasionally a little swelling after exercise. Physiotherapy and bandaging had produced no improvement. She was a healthy girl in good general condition. There was slight wasting of the left quadriceps, slight painful limitation of flexion and extension of the knee-joint, and pain and crepitus on rubbing the patella against the femur. On *x*-ray examination there appeared in the lateral view a faint shadow indicating an irregularity of the articular cartilage of the patella.

At operation an extensive lesion of the articular cartilage of the patella was discovered. In the lower part of the medial facet there was a shallow quadrilateral ulcer with a soft velvety floor. The lateral facet was oedematous, and its surface scored by superficial fissures irregularly disposed. At the lower edge of the patella the articular cartilage was heaped up to form an irregular rim. The patella was exised. Her pain was completely relieved, but a feeling of insecurity in the knee persisted for nearly a year. The muscles recovered perfectly, but she was unable to run because she felt that the knee would let her down. This neurosis disappeared eventually. When seen five years after the operation she had made a complete recovery and the knee-joint was perfectly satisfactory.

Case 4.—A soldier aged 31 complained of chronic pain "behind the right knee-cap." The pain had been present for four years. There was no history of injury, no locking, and no instability. The right quadriceps was slightly deficient. There was tenderness over the patella. No other clinical signs were present, but in the lateral *x*-ray film a slight irregularity suggested an erosion of the articular surface of the patella (Fig. 10).

At operation a gross lesion of the articular surface of the patella was discovered. Running transversely across the lateral facet there was a shallow ulcer 6 mm. wide, with a rough floor, and in the lower part of the articular surface there were two similar but smaller ulcers (Fig. 4). The remainder of the articular surface was unevenly oedematous, and on the upper part there were numerous fine vertical superficial fissures. The patella was excised, and he made a complete recovery.

Case 5.—This patient was a soldier aged 28. Two weeks previously his right knee, formerly apparently normal, had become painful and swollen. The swelling persisted. There was no history of injury. The right quadriceps was slightly deficient. There was a moderate effusion but no tenderness. The range of movement was from 5 to 90 degrees. *X*-ray films showed a localized irregularity of the articular surface of the patella with some subchondral rarefaction.

At operation an extensive lesion of the articular cartilage of the patella was disclosed. The whole of the articular surface, except a narrow strip along the lower border, was oedematous and covered with fine superficial fissures. The oedema was most pronounced over the medial facet. On the ridge between the middle and lateral facets a deep fissure had undercut a flap of cartilage about 1 cm. square. This flap was pedunculated, being attached by its outer margin. Underneath it the bone was exposed. The synovial membrane around the patella was congested. There was a "mirror" lesion in the intercondylar surface of the femur, with softening of the cartilage and fine vertical fissuring. The patella was excised. The patient made a complete recovery.

Case 6.—A woman aged 20 had pain in her right knee-joint for six months. The pain was "under the knee-cap." The joint swelled at times. There was retropatellar crepitus, and rubbing the patella against the femur caused pain. *X*-ray films showed no abnormality. Prolonged physiotherapy had given no relief. The patella was removed. There was extensive shallow ulceration of the articular cartilage on the external facet, with fine vertical striations caused by superficial fissures. On the ridge between the facets there was a deep cleft in the cartilage, from which some rod-like pieces of degenerate cartilage projected above the level of the articular surface (Fig. 6). After operation the quadriceps muscle recovered only slowly. It was six months before she had regained the full power of extension. One year later the knee-joint was painless and entirely satisfactory.

Case 7.—A woman aged 22 had for 15 months had pain under the left knee-cap, especially on going up or down stairs and on getting up after sitting for some hours—e.g., in the cinema. The knee swelled occasionally. Passive movements of the patella across the femur caused pain and elicited a fine crepitus. *X*-ray films were negative. At operation fairly advanced changes were found in the articular cartilage of the patella. There was oedema of both facets, with many superficial fissures in the articular cartilage. On the lower part of the internal facet a small ulcer extended through the whole thickness of the cartilage, exposing the subchondral bone. On the central ridge there were several small rounded excrescences caused by localized proliferation of the cartilage (Fig. 3). The patella was removed. After operation she had great difficulty in regaining control over her quadriceps. For several weeks the muscle appeared to be completely inhibited. It gradually recovered, but the knee became very stiff and was eventually mobilized by repeated manipulations. One year after operation she had a full range of movement, normal power of extension, and no pain.

Case 8.—A woman aged 31 complained of persistent pain on the inner side of the knee and under the knee-cap after an operation for removal of the internal semilunar cartilage, which was said to have been badly torn. There was retropatellar crepitus and pain on passive movements of the patella. An exploratory operation was performed. The internal semilunar cartilage was absent—no regeneration had occurred. The patella showed an early stage of degeneration of the articular cartilage. Over most of the articular surface there was a slight oedema associated with a change in the colour from the normal bluish sheen to a lacklustre yellowish white. Superficial fissures produced fine vertical striations. In places very superficial erosion had occurred, and here the texture of the surface was like that of velvet. The patella was removed. This is a recent case. The patient is making a satisfactory recovery.

Case 9.—A boy aged 11 injured his right knee. The patellar ligament was avulsed from the patella, pulling off a small flake of bone from the lower pole. At operation for repair of this injury an early chondromalacia of the articular cartilage of the patella was observed, with oedema, change of colour, and vertical striations. The patella was left *in situ* as there was no evidence that it had previously caused any disability. He will be kept under observation.

Summary

Degenerative changes in the articular cartilage of the patella often occur and are a common cause of derangement of the knee-joint in young persons.

The patellar lesion is a degeneration of articular cartilage in a circumscribed area, where oedema, fibrillation, and ulceration occur.

The condition may be latent or may cause pain, effusion, derangement of motion, and crepitus. The differential diagnosis from lesions of the semilunar cartilages may be difficult.

X-ray changes are absent or very slight.

Excision of the patella may be necessary.

A small number of cases are described.

I am greatly indebted to Dr. D. M. Pryce, of St. Mary's Hospital, Paddington, for his generous and most expert help concerning the pathology. For the photographs I am indebted to Mr. Luck, of the photographic department of the Royal Free Hospital.

REFERENCES

Aleman, O. (1927–8). *Acta chir. scand.*, **63**, 149.
Bennett, G. A., Waine, H., and Bauer, W. (1942). *Changes in the Knee Joint at Various Ages.* Oxford Univ. Press, London.
Büdinger, K. (1906). *Dtsch. Z. Chir.*, **84**, 311.
—— (1908). Ibid., **92**, 510.
Fründ, H. (1926). *Zbl. Chir.*, **53**, 707.
Herzmarh, M. H. (1937). *J. Bone Jt. Surg.*, **19**, 1089.
Hinricsson, H. (1939). *Acta orthopaed. scand.*, **10**, 312.
Karlson, S. (1939). *Acta chir. scand.*, **83**, 347.
Kulowski, J. (1933). *J. Amer. med. Ass.*, **100**, 1837.
Läwen, A. (1925). *Beitr. klin. Chir.*, **134**, 265.
Ludloff, K. (1910). *Verh. dtsch. Ges. Chir.*, **39**, 223.
Murstad, E. (1927). *Forh. i. Oslo kir. Forening.*, **1**, 35.
Oberniedermayr, A. (1930). *Arch. klin. Chir.*, **156**, 56.
Öwre, A. (1936). *Acta chir. scand.*, **77**, Supp. 41.
Silfverskiöld, N. (1938). *Acta opthopaed. scand.*, **9**, 214.
Slowick, F. A. (1935). *New Engl. J. Med.*, **213**, 160.
Soto-Hall, R. (1945). *J. Bone Jt. Surg.*, **27**, 426.
Stören, H. (1929). *Norsk. Mag. Laegevidensk.*, **90**, 669.
Wiberg, G. (1941). *Acta orthopaed. scand.*, **12**, 319.

VITAMIN D IN TREATMENT OF CUTANEOUS TUBERCULOSIS*

BY

G. B. DOWLING, M.D., F.R.C.P.
Physician, Skin Department, St. Thomas's Hospital; Consultant Dermatologist to Treloar Hospital and Morland Clinics, Alton

SUZETTE GAUVAIN, M.R.C.S., L.R.C.P.
Medical Officer, Treloar Hospital, Alton, Hants

AND

D. E. MACRAE, M.B., B.S.
Medical Superintendent, Morland Clinics, Alton, Hants

[WITH PHOTOGRAVURE PLATE]

In England experience in the use of heavy doses of calciferol—vitamin D_2—in the treatment of lupus began in August, 1943, with the observation of Dowling on a seven case in which general light treatment combined with Finsen therapy for a number of years had failed. Within three months this patient had improved dramatically. Thereafter Dowling and Prosser Thomas, working in the same department, applied the remedy to every case of lupus that could be mustered. The number was not large, but the results after 2½ years appeared to be striking enough to carry conviction. Accordingly 11 of these cases were presented at meetings of the Section of Dermatology of the Royal Society of Medicine in November and December, 1943. From French literature which became available shortly afterwards it was learned that calciferol had been used on a considerable scale in France following the publication in December, 1943, of M. J. Charpy's original observations which were begun in 1940. Indeed, compared with the mass of observations published in that country, ours amounted to no more than a drop in the ocean.

Dowling and Prosser Thomas's cases were treated almost entirely with calciferol in the form of dry tablets, each

*A paper read at the Section of Dermatology of the International Conference of Physicians on Sept. 9, 1947.

containing 50,000 international units, in dosage varying from 150,000 to 100,000 i.u. daily—according to tolerance and progress. Eight of these cases showed toxic effects, which, however, came to an end quickly when the drug was stopped or the dosage reduced. Of 39 cases treated up to the end of 1945, 32 were considered suitable for assessment—18 appeared to be free from lupus (i.e., only scars or scars and pigmentation remained), with or without the help of local treatment; nine were greatly improved but not cured; and five had shown but little improvement. In these cases only the effect of calciferol on the disease and the incidence of clinical toxicity were noted.

Present Investigation

To this series we add 44 cases of lupus—34 adults and 10 children, under the care of Macrae at the Morland clinics and of Suzette Gauvain at the Treloar Hospital at Alton—upon whom treatment was begun in 1946, and 70 other cases of tuberculosis; to the latter group a brief reference will be made in due course. These were all institutional cases and were under close daily observation. Among the adult cases of lupus were some of the most severe in the country. Their average age was 38.5 years and the average duration of the disease 18.9 years. To the whole of this group it was decided to apply the following routine pathological investigations before and during the course of treatment: (1) the Mantoux reaction; (2) serum calcium estimations; (3) blood counts; (4) blood sedimentation rates; (5) when possible, histological examination of the disease process at regular intervals; and (6) *x*-ray examinations of the chest and abdomen. In addition, regular records were kept of weights, blood pressure, and urine.

Clinical Results.—Of the 34 adult cases of lupus at Alton each responded, though unequally: 30 have been discharged free from clinical evidence of lupus, and in the remaining four treatment is being continued. Of the 30 cases which have been discharged, eight at some time showed signs of relapse after previous apparent cure. These relapses have responded well to further treatment, though usually better if the process has been allowed to develop for a while than when the patients have been retreated at the earliest possible moment. The results are shown in Table I.

TABLE I.—*Results in 34 Adult Cases of Lupus*

Calciferol Given for	No. Cleared	Average Age in Years	Average Duration of Disease in Years	No. Showing Toxicity	No. Recurring but Responded to Further Treatment	No. not Cleared
0– 2 months ..	2	60	4	1	0	—
2– 4 „ ..	12	36	16	4	1	—
4– 6 „ ..	6	34	21	1	2	—
6– 8 „ ..	5	49	33	3	4	2
8–10 „ ..	2	30	16	2	0	1
10–12 „ ..	2	36	14	0	1	—
12 „ ..	1	18	12	1	0	1
Totals ..	30	38·5	18·9	12	8	4

Early Herxheimer-like Reaction.—During the early weeks of treatment many of the adult cases appeared to be worse, with increase in redness and swelling and occasionally spontaneous ulceration. This was followed by gradual subsidence, pallor, and shrinkage of inflammatory swelling. This Herxheimer-like reaction has occurred also in a patient with Bazin's disease, who developed a haemoptysis during treatment and died, and in a patient with lupus who developed symptoms of pulmonary tuberculosis though radiologically no evidence of that disease had been found before treatment was started. Increase in activity of the tuberculous process early in treatment was also seen last year in a case of lupus presented at the clinical meeting of the British Association of Dermatology and Syphilis. The case developed a striking and extensive lichenoid tuberculide shortly after treatment with calciferol had been instituted. Similar experiences were related by S. Lomholt and M. Grzybowski during the meeting at which the paper here presented was read.

Importance of Local Treatment.—In the great majority of cases it was found that the addition of local treatment greatly accelerated progress, either when the disease had been brought under control by calciferol or, in fungating lupus, near the onset of treatment. It was also observed, particularly in patients with extensive disease, that patches previously treated by local methods were the first to respond to calciferol therapy. The local measures employed were those inherited from long experience in association with Sir Henry Gauvain. They consisted mainly of Finsen therapy, Kromayer-lamp treatment combined with the application of selective caustics, particularly picric brass paste and liquid acid nitrate of mercury; curettage in the case of fungating lesions followed by the application of pure lysol. Finally, operations for the correction of such deformities as extreme narrowing of the oral and nasal orifices, ectropion, and elephantiasis of the upper lip have been performed earlier than would have been possible without treatment by vitamin D. The importance of local treatment must be emphasized, as there may be a tendency to think that treatment with calciferol may have eliminated the need for it. On the contrary, the need for skilled local intervention in a fully equipped institution has hardly been diminished.

Methods of Administration.—In the adult cases calciferol was administered chiefly by mouth in the form of dry tablets, oily capsules, or an emulsion of the oily solution, the daily dosage being 150,000 to 100,000 i.u. A few cases were treated by the injection of 600,000 i.u. (15 mg.) in oily solution twice a week. Response to treatment by injection was notably slower than by mouth, but, on the other hand, no toxic effects were encountered in this small group. The dosage required varied from 9,500,000 to 62,500,000 i.u. Of 10 children with lupus treated with calciferol by mouth, chiefly in the form of dry tablets, clinical evidence of the disease has come to an end in seven, while three remain under treatment. The usual dosage was 100,000 i.u. daily. The period of treatment has varied from 63 to 226 days, the average being 139 days; the average dosage about 18,000,000 units, varying from 4,750,000 to 33,500,000 i.u. An initial flare-up was observed in only a few cases (Table II).

TABLE II.—*Results in 10 Cases of Lupus in Children*

Calciferol Given for	No. Cleared	Average Age in Years	Average Duration of Disease in Years	No. Showing Toxicity	No. Recurring but Responded to Further Treatment	No. not Cleared
0– 2 months ..	2	9·0	2·6	2	1	—
2– 4 „ ..	1	9·0	7·0	1	—	1
4– 6 „ ..	1	13·0	3·3	—	—	1
6– 8 „ ..	2	10·6	2·0	1	—	1
8–10 „ ..	—	—	—	—	—	—
10–12 „ ..	1	13·0	1·0	—	—	—
Totals ..	7	11·4	2·10	4	1	3

Non-cutaneous Tuberculosis

Calciferol was given in 31 adult cases of non-cutaneous tuberculosis. Most of them have been tuberculous adenitis of the neck, but in addition tuberculous tenosynovitis, peritonitis, bladder disease, dactylitis, and disease of various joints have been treated. The results on the whole have been extremely good, particularly with the glands, in which calciferol produced in a few some early reaction, followed in all by shrinkage and calcification. Subsequent excision has been made easy, as the glands have been small, discrete, and mobile, and consisted in greater part of calcium salts. Two cases of tuberculous peritonitis have responded in a spectacular manner, and disease in small bones has done well. In the larger joints the results have been rather disappointing. In one case of bladder disease frequency was greatly reduced, though bacilluria persisted.

Among the children there have been 16 cases of tuberculous glands. The results compared very closely with those obtained in the adult group. The average dose received was 7,400,000 units, with a maximum of 18,000,000 and a minimum of 1,800,000 units. Rapid healing of sinuses was one of the features observed among these children. Within recent months 21 cases of tuberculous bones and joints in children have been treated. It is too early to speak of results, but it can be said that they appear to be making good clinical progress, and that

radiologically some cases have so far shown a greater degree of recalcification than normally would have been expected with routine conservative treatment.

Results of Investigations

During the first two weeks of treatment the diameter of the erythema of the Mantoux reaction increased in almost every case from an initial average of 16.4 mm. to 19.8 mm., and thereafter gradually subsided to the original or slightly less than the original diameter. At the same time the sedimentation rate in the first hour rose from an initial average of 14.3 mm. to 28 mm. at the end of a month, and then fell to 22.9 mm. at the end of two months, and 19 mm. at the end of three months, thereafter falling to normal except in patients showing toxic effects, in whom a second sharp rise was met with.

Relation of Serum Calcium Readings to Clinical Results.—So far it has not appeared possible to correlate clinical results with quantitative increase in the serum calcium. This does not necessarily imply that calcium plays no part in the process of cure. It remains to be seen whether the diseased tissue gains in calcium during the course of treatment or not. Histological examination of material stained by the ordinary methods has revealed no sign of deposition of calcium, but some work by Tomlinson and Tonks at Coventry on a small amount of material seems to show that in fact there may be quite a substantial gain. Blood counts have revealed a slight degree of anaemia in most patients under prolonged treatment with calciferol, and most of the adults have lost some weight while under treatment.

Histological Changes during Treatment.—At Alton a considerable quantity of histological material has been collected. In one very extensive case weekly biopsies were made during seven months up to the time of writing. The changes in this case were similar to those found in other cases and to those described in 1945 by Vachon and Feroldi. They consisted essentially in the development of a quantity of young connective tissue about the lupus nodules unaccompanied by elastic fibres. This delicate-looking fibrillary tissue seemed to be invading the process, breaking it up into fragments, and ultimately appearing to replace it almost completely. For a time the histological picture closely resembled that of sarcoid. The changes in this case are shown in the Photogravure Plate; they are described by Dr. J. Bamforth as follows:

"Section just before the beginning of treatment (Feb. 15, 1947) shows in the dermis a tuberculous focus comprising several giant-cell systems, consisting of typical aggregations of endothelial cells and lymphocytes, and in two of which giant cells are seen. There is slight caseous change and no reactive fibrosis. (Plate, Figs. 1 and 2.)

"Two months after the beginning of treatment (April 16) an early change is noted in the histological picture. The giant-cell systems are invaded by histiocytes—elongated cells, straight or slightly curved, with deeply staining nuclei and little cytoplasm. These cells are seen between the endothelial cells. (Fig. 3.)

"Two weeks later (April 30) it is found that the invasion of the giant-cell system by histiocytes has increased, and that, disposed in circular fashion around the lesions, zones of early fibrous tissue formation have appeared. These zones isolate one giant-cell system from another. (Fig. 4.)

"One month later still (May 21) examination shows that the disintegration of the giant-cell system is well advanced. The individual cells are isolated, and at one part the curious picture is shown of several giant cells separated from each other by this newly formed connective tissue. Both endothelial cells and giant cells are beginning to disappear, and in many of the lesions only one or two endothelial cells remain. Finally, all that is left is an area of fibrosis associated with lymphocytic infiltration." (Figs. 5 and 6.)

Few cases have failed to show traces of granulomatous material even after prolonged treatment, but to what extent these residual traces of tubercles should be regarded as a threat of future relapse remains to be seen. One case, however—that of a young adult—appeared to be completely cured in five months by calciferol after many years of failure by heliotherapy at Leysin and general light and Finsen and other local treatment at Alton. A plastic operation was thereafter performed on the upper lip. In this case no trace of the tuberculous process was found histologically in the tissue removed by operation.

Toxic Effects

Of 39 cases treated between 1943 and 1945 by Dowling and Prosser Thomas eight developed toxic symptoms, none of them severe. In the Alton series 17 of the 34 adult cases showed clinical toxicity, and it has been observed that during the toxic phase clinical improvement in the disease has often been most pronounced. In two of these cases complete and remarkable disappearance of the disease has taken place when the patient's general health had given rise to real concern. The symptoms and signs of toxicity have been chiefly marked pallor, thirst and polyuria, constipation, headache, tiredness, loss of appetite, and sickness. The average dose at which toxicity developed was about 19,000,000 i.u., varying from under 2,000,000 to 63,500,000 i.u. Among the adults the blood sedimentation rate has proved to be a reliable index of the onset of toxicity, and no case has been met with in which a significant rise was not found when the time came to call a halt to treatment. In children, approaching toxicity is signalled by a rise in the blood urea.

Clinical toxicity was met with in only two of the 10 children with lupus. One of them developed symptoms similar to those of early tuberculous meningitis, with anorexia, vomiting, photophobia, and neck rigidity. He felt quite well 14 days after treatment was stopped, though he continued to look rather ill for a little while longer. The disease process disappeared almost completely during this illness. Toxicity has occurred more often in children suffering from other forms of tuberculosis, and in these constipation has almost invariably been the initial symptom, while occasionally acute abdominal pain suggesting appendicitis has been an early symptom. Altogether 24 out of 50 children have developed toxic symptoms at some time.

Toxic symptoms, both in the Alton series and in patients treated as out-patients at St. Thomas's Hospital, have not appeared to be closely related to serum calcium levels. The reading of 15 mg. per 100 ml. has been found on several occasions without toxic symptoms, while relatively unimportant rises have been associated with marked toxicity. In general the cases treated with calciferol by mouth have shown some rise in serum calcium above the normal, while seven adults treated by injection showed no rise in serum calcium and no clinical toxicity. Thirst and polyuria are likely to be the result of an attempt on the part of the organism to dilute the blood enough to keep the excess of calcium in solution. The relative anaemia generally observed in cases under prolonged treatment might also be due to a rise in blood volume. *X*-ray examinations have so far failed to reveal any evidence of deposition of calcium in normal tissues or organs.

A valuable contribution to the study of toxicity was given by J. Dawson last July at Leeds. The material consisted of 186 cases (158 lupus, 28 other cases): of these, 34.7% showed a biochemical disturbance without clinical toxicity—that is, a rise in serum calcium to over 12 mg. per 100 ml. or a diffusible calcium rise to over 7 mg. Of the 186 cases 30 (16.2%) developed clinical toxicity, the onset of symptoms taking place at the mean dose of 16,400,000 i.u. Among the clinically toxic cases the blood urea nitrogen was raised above 25 mg. in all except four cases, and in these there was a rise from previous levels.

Urea-clearance tests were carried out in 11 cases in the clinically toxic group at periods ranging from immediately after the cessation of treatment to 34 weeks, and in four with blood changes without symptoms. Ten out of these 15 cases showed marked renal impairment.

Dawson also found that while diffusible calcium increased in toxic cases the ionic fraction did not necessarily go up. Part of the increase seemed to be due to the formation of a new substance for which the term "calcium steroid complex" was suggested; it was known that the steroid part was, however, not calciferol itself. A rise in serum protein was also found during clinical toxicity. The last finding suggests a possible reason for the sudden rise in the blood sedimentation rate observed among the adult group at Alton at the onset of clinical toxicity. This

brief reference to Dawson's work is quoted from notes supplied at the annual meeting of the British Association of Dermatology and Syphilis at Leeds or taken during the reading of his paper, the publication of which is awaited with interest.

Following Dawson's observations, tests for renal efficiency have been performed so far on 27 adults and 22 children at Alton, the greater number of whom either were under treatment or had been until recently. The results of this investigation up to the present time are shown in Tables III and IV. The record is far from complete and does not include a number of the cases of lupus which have been discharged during the past year. A full account will be published in due course.

At St. Thomas's Hospital urea-clearance tests have been performed on 15 cases of uncomplicated lupus, of which four are under treatment, while 11 have received no treatment for three months to two years. The results are seen in Table V. It is difficult to summarize these tables, but it can be said that: (1) they bear out Dawson's observation that patients under treatment with heavy doses of vitamin D often show impairment of renal function; (2) the degree of impairment seems to be greater in adults than in children; and (3) the rate of recovery of renal efficiency after impairment varies—it appears to be more rapid in children than in adults.

The picture can be completed only by investigation of a series of cases before, during, and at intervals after the completion of treatment.

TABLE III.—*Adults*

Case	Age	Disease	Treatment Stopped	Dose (million i.u.)	Highest Blood Ca. (mg./100 ml.)	Clinical Toxicity	Blood Urea (mg./100 ml.)	Urea Clearance‡
A. A.	64	Lupus	Still on	80	12·2	Nil	40	107·0%
F. C.	18	,,	,,	67·35	14·4	Mild	43	96·7%
E. M.	34	,,	,,	41·2	12·1	,,	34	68·4%
M. T.	33	,,	,,	15·3	14·4	Mod.	48	34·2%
A. W.	45	,,	,,	81·15	13·6	Nil	35	62·5%
A. B.	20	,,	4 mths. ago	37·8	11·0	Mild	20	124·3%
M. B.	50	,,	8½ ,, ,,	42	11·8	Nil	42	67·0%
W. C.*	32	,,	6 ,, ,,	29·1	14·7	Mod.	38	59·6%
L. F.	50	Lupus, spinal caries, and dactylitis	6 ,, ,,	12·3	16·2	Mild	33	34·0%
W. G.	41	Lupus	2 ,, ,,	13·65	15·0	,,	34	78·8%
L. L.	41	,,	4 ,, ,,	41·1	11·1	,,	29	66·0%
R. M.	30	,,	7 ,, ,,	30·6	15·3	Mod.	25	75·4%
A. R.	22	,,	2½ ,, ,,	28·2	12·4	Nil	29	91·0%
H. S.	31	,,	1 mth. ,,	44·5	11·6	,,	30	191·6%
R. D.	23	,,	11 mths. ,,	26	11·7	,,	31	193·0%
G. D.	19	Tb. hip	Still on	36·3	11·8	,,	32	76·2%
J. R.	23	Tb. adenitis	,,	27	11·9	,,	25	131·9%
M. S.	39	,,	,,	10·8	11·0	,,	35	51·0%
F. G.	30	,,	2 mths. ago	17·85	13·3	Mod.	33	38·5%
D. L.	21	Bazin's	12 ,, ,,	12	10·8	,,	27	71·0%
A. M.	20	Tb. adenitis	½ mth. ,,	46	11·6	Nil	33	95·8%
M. R.	50	Tb. wrists	3½ mths. ,,	36·3	16·1	Mild	33	62·9%
M. S.	46	Tb. peritonitis	½ mth. ,,	16	10·9	Nil	40	57·2%
J.S.†	38	Tb. adenitis	—	None	—	—	28	150·0%
		—	½ mth. ago	2	16·7	Mod.	35	51·0%
		—	2 mths. ,,	—	—	—	56	53·2%
			Controls before Treatment					
Y. B.	17	Tb. adenitis	—	None	—	—	31	139·0%
G. B.	47	Tb. peritonitis	—	,,	—	—	39	105·6%
J. S.	38	Tb. adenitis	—	,,	—	—	20	150·0%

* This patient has had one kidney removed and has tuberculosis in the other.
† Treated with vitamin D_3.
‡ Normal = 70% upwards.

TABLE IV.—*Children*

Case	Age	Treatment Stopped	Highest Ser. Ca.	Clinical Toxicity	Total Dosage Vit. D (million i.u.)	Blood Urea (mg./100 ml.)	Urea Clearance (Normal, 70%)
		Lupus Cases					
C. B. ..	8	9 months ago	13·5	Severe	5·85	31	79·0%
F. M. ..	13	Still on	11·3	Nil	16·5	24	98·3%
J. W. ..	10	Still on	13·5	,,	8·4	40	63·6%
		6 weeks after	13·5	,,	8·4	24	85·5%
		Tuberculous Glands					
D. B. ..	10	8 months ago	14·2	Mild	5·4	36	89·6%
D. C. ..	11	2 ,, ,,	13·7	Nil	15·8	50	121.0%
E. J. ..	8	5 ,, ,,	16·5	Mild	15·9	40	55·0%
T. S. ..	8	4 ,, ,,	11·2	,,	3·8	35	112·5%
M. L. ..	7	3 ,, ,,	16·5	V. mild	13·5	31	113·5%
N. C. ..	9	Still on	11·3	Nil	7·8	28	105·7%
M. H. ..	8	5 weeks ago	13·6	,,	8·4	34	92·6%
J. S. ..	7	Still on	12·4	,,	10	35	90·3%
M. V. ..	6	,,	13·0	Mild	9·9	32	106·5%
B. M.* ..	15	(Before treat.)	9·8	—	—	21	119·0%
		Still on	13·1	Nil	4·1	36	62·3%
A. W.* ..	13	(Before treat.)	11·8	—	—	24	157·5%
		Still on	11·1	Nil	4·1	35	79·9%
G. G. ..	10	Still on	11·7	,,	7·2	41	56·9%
		2 weeks after	11·7	,,	7·2	37	71·3%
A. H. ..	6	3 months after; then on 3 weeks' post-op. course	13·2	Mild	12·6	29	130.0%
			15·2	,,	14·1	44	90.0%
		Group of Tuberculous Cases Untreated by Calciferol					
John C. ..	9	—	11·3	—	—	31	123·0%
T. D. ..	5	—	10·4	—	—	33	91·5%
C. D. ..	11	—	11·8	—	—	24	108·5%
K. W. ..	7	—	11·0	—	—	28	72·5%
A. F. ..	8	—	11·8	—	—	31	99·2%
Joyce C. ..	11	—	9·6	—	—	24	135.0%

All children were given extra fluids.
* On D_3 both complained particularly of thirst and polyuria, though they showed no toxic symptoms; many adults also complained of great thirst. These symptoms are not included in the tables under clinical toxicity.

TABLE V.—*Lupus Vulgaris*

Case	Age	Stopped Treatment	Highest Ser. Ca.	Toxicity	Dosage (million i.u.)	Urea (mg./100 ml.)	Urea Clearance	Activity
F. S.	55	0	13·3	Mild	58	20	73%	Slight
M. M.	62	0 (Vit. D 3)	15·4	Mod. severe	24·25	58	41%	Active
L. M.	32	0 (prophylactic)	14·0	Moderate	18·9	25	70%	Nil
W. B.	50	0	14·4	Nil	43·1	29	86%	,,
C. P.	35	3 months	12·2	,,	39·4	38	101%	,,
G. E.	9	4 ,,	Never done	,,	8·15	41	57%	,,
C. G.	39	10 ,,	,,	Moderate	72·6	30	77%	,,
H. B.	76	14 ,,	10·0	,,	13·65	45	66%	,,
C. S.	32	18 ,,	10·8	Nil	20·25	26	91%	,,
W. S.	36	22 ,,	Never done	,,	47·2	25	111%	,,
S. B.	32	24 ,,	,,	,,	49·8	27	103%	,,
E. H.	32	6 ,,	,,	,,	12·6	30	63%	Slight
G. P.	39	12 ,,	Never done	Minimal	18	18	115%	Nil
E. M.	17	4 ,,	Slight	24	17	93%	,,	
E. T.	50	3 ,,	14	Minimal	71·2	20	92%	Slight

Discussion

From our experience alone it can be said that calciferol has a marked curative effect on lupus vulgaris. For example, Fig. A shows an early stage of treatment and Fig. B the same patient 18 months later; Figs. C and D show the change in another patient treated by a combination of calciferol and local measures. In any case, the great volume of observations published in France, Belgium, and other countries since Charpy introduced the method is too well known to require any emphasis on that point. Published results have certainly varied widely, and it is hard to account for the discrepancies, but it is clear from the weight of evidence that the first observation of the kind—that of Emery in France nearly 100 years ago, on the effect of enormous doses of cod-liver oil in lupus—was one of great interest and importance.

Accepting this simple observation as a starting-point, three questions must occur to everyone: (1) How does calciferol act? (2) How can it be used most effectively? and (3) Can it be made safe or relatively safe?—for perfectly safe remedies are almost non-existent.

So far as effectiveness and safety are concerned Charpy has stated repeatedly that he has found calciferol in solution in alcohol more effective and less toxic than in oil when given by mouth. He has developed a kind of standard course for otherwise healthy adults consisting of a large boosting dose of 1,200,000 i.u. in the first 4 weeks, and 600,000 i.u. in succeeding months. While about 100,000 i.u. daily for an adult appears to be effective, it is probable that no absolute standardization of the remedy is likely to be achieved: the threshold of tolerance is far too variable. One patient, for example, became very toxic on less than 2,000,000 units, with a serum calcium reading of over 15

and marked renal impairment. In this case the tuberculous lesions—widely scattered adenitis—improved rapidly during the toxic period. Rapid involution of the tuberculous process has been seen so often during toxicity that it is difficult to escape from the impression that the most effective dose is somewhat near the limit of tolerance and may occasionally be beyond it.

The first question—How does calciferol act?—is obviously the most important, but it is unlikely that it will be answered by purely clinical and pathological observation.

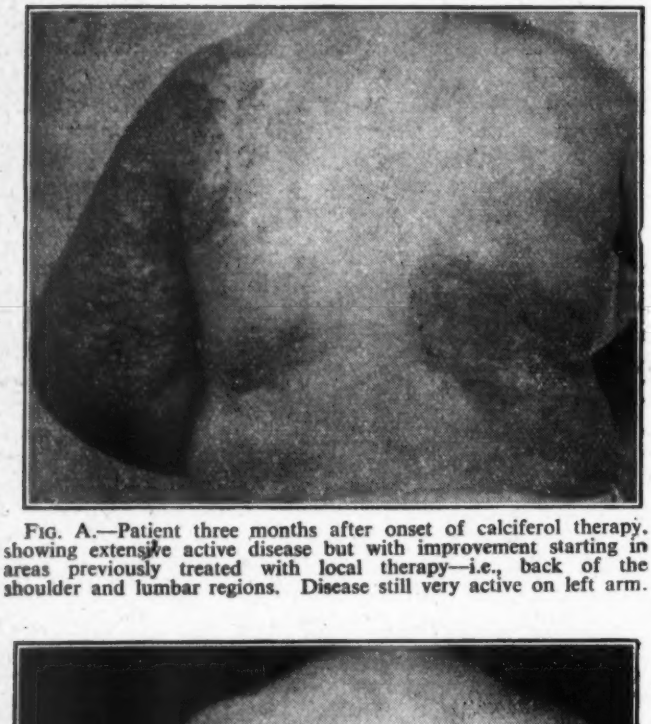


FIG. A.—Patient three months after onset of calciferol therapy, showing extensive active disease but with improvement starting in areas previously treated with local therapy—i.e., back of the shoulder and lumbar regions. Disease still very active on left arm.

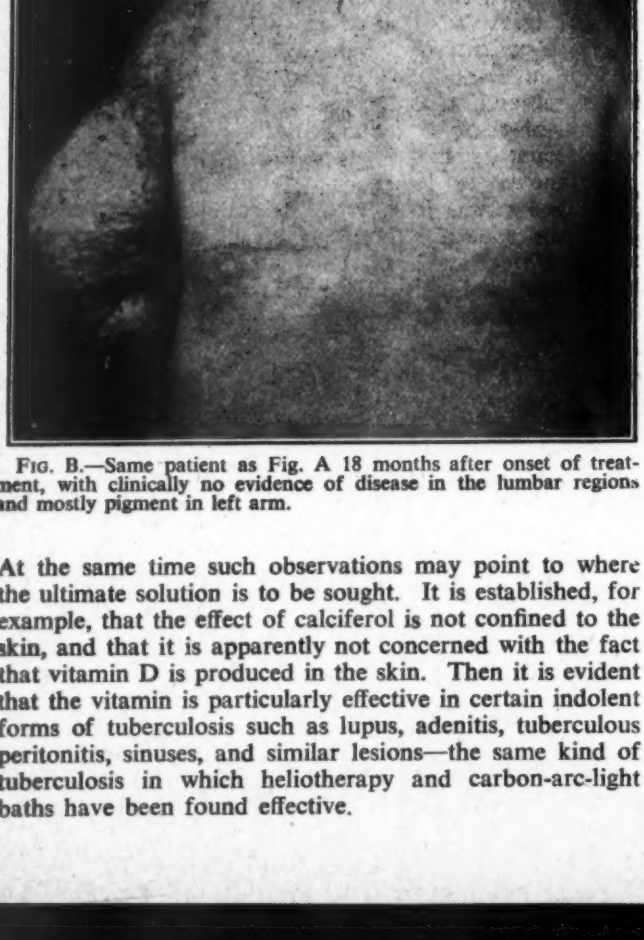


FIG. B.—Same patient as Fig. A 18 months after onset of treatment, with clinically no evidence of disease in the lumbar regions and mostly pigment in left arm.

At the same time such observations may point to where the ultimate solution is to be sought. It is established, for example, that the effect of calciferol is not confined to the skin, and that it is apparently not concerned with the fact that vitamin D is produced in the skin. Then it is evident that the vitamin is particularly effective in certain indolent forms of tuberculosis such as lupus, adenitis, tuberculous peritonitis, sinuses, and similar lesions—the same kind of tuberculosis in which heliotherapy and carbon-arc-light baths have been found effective.

It must next be decided whether or not calciferol has any direct effect on the tubercle bacillus or on its virulence. Steenken and Baldwin, in 1937, failed to produce any effect either on the growth of the bacillus by the addition of calciferol to culture media or on its virulence in guinea-pigs after such treatment. Wetherley-Mein, working under Bamforth's direction at St. Thomas's Hospital, has been carrying out a similar investigation, impregnating Dorset's egg medium with quantities of calciferol varying from 1,000 to 100,000 i.u. per ml. of the medium. So far calciferol in quantities up to 10,000 i.u. per ml. of the medium has not appeared to interfere with the growth of the cultures.

Dickinson (1947) treated guinea-pigs infected one month previously with tubercle bacilli with 2,000 i.u. daily for 10 weeks without any effect on the development of tuberculosis as compared with controls.

The well-known observation of Levaditi and Po in 1930 on experimental tuberculosis of *gradual evolution* in rabbits and guinea-pigs is more relevant. It was found that the administration of massive doses of calciferol greatly accentuated the calcification and cure of the experimental lesions. This, however, was regarded by the authors as a tissue response.

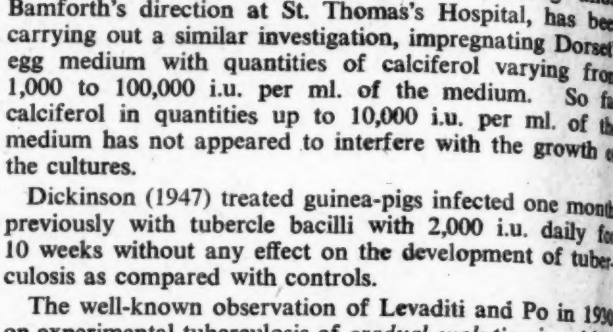


FIG. C.—Condition of another patient on admission.
FIG. D.—Same patient as Fig. C two months later, after a combination of calciferol and local measures, such as scraping.

The evidence, therefore, so far would appear to be that calciferol as such has no effect on the growth of tubercle bacilli or on their virulence.

Does calciferol act as a non-specific stimulus to the defence process? If this is so might it not be expected to have a similar effect in other infective granulomas? On a few cases of tertiary syphilis it has been shown to have no effect. As regards sarcoid, three cases presented at the Royal Society of Medicine in 1946 appeared to have responded well, though slowly. Three other cases of sarcoid presented at Leeds by Ingram last July, had also improved under the treatment, while one had shown no definite sign of improvement. But so far it has not been proved that sarcoid is not a phase of tuberculosis.

At present, therefore, it is possible to say that, although calciferol appears to have no direct action on the tubercle bacillus, it seems to be most effective in granulomatous lesions caused by the tubercle bacillus, and perhaps in them only. It has an effect similar to that of older remedies—the Gerson-Herrmannsdorfer diet, cod-liver oil, heliotherapy, and artificial-light baths—in all of which the common factor is a relative abundance of vitamin D, but it produces this effect far more rapidly and as a rule more completely than the older methods. Perhaps the most significant pointer to what is happening is to be found in the

histological material. The abundant young connective tissue—its invasion of the process breaking it into fragments, sometimes disposing of it altogether—seems to be the principal agent of cure.

Why does this tissue receive so powerful a stimulus? Is it because the tubercle bacillus itself is damaged through some indirect effect of the remedy, thereby allowing such an intense defence reaction to take place? Some by-product of the disturbance of calcium and phosphorus metabolism to which the drug gives rise might be supposed to have such an effect, and the Herxheimer-like action sometimes observed faintly suggests some such possibility. Or, on the other hand, may the reticular tissue itself be made to function with extreme intensity and efficiency by calciferol or by some product of its activity? It has been noted in more than one case at Alton that, while biopsy wounds in lupus generally heal with difficulty, healing under calciferol takes place almost by first intention. In the patient who had 30 biopsies the wounds gaped at first but healed quickly while treatment was in full swing. This patient developed toxic symptoms, and treatment was stopped after 3½ months. From that time his biopsy wounds again healed with difficulty, although improvement had been well maintained.

Much work which lies outside the scope of clinical and clinical-laboratory observation will have to be done on this subject, probably in the field of biochemical research. It is a fascinating problem which, if solved, might throw light on the character of the natural defence mechanism of the organism against tuberculosis. For it would appear that calciferol is not a chemotherapeutic agent in the ordinary sense, but that it may be a catalyst or an accelerator of a normal process.

In the meanwhile those of us who are satisfied that the advantages of the drug outweigh its dangers ought to use it with all the care which observers in the clinical, pathological, and biochemical fields have shown to be necessary.

Finally, it should not be forgotten that the local manifestations of tuberculosis are part of a general disease, and that the patient as a whole requires good food, fresh air, and adequate rest. Lupus requires, in addition, local measures which demand considerable experience and skill. All these can best be given in an institution specially equipped for the purpose.

We acknowledge with gratitude our indebtedness to Dr. E. M. Martland, of the Pathological Department of the Salisbury General Infirmary, who has undertaken all the pathological investigations on the Alton cases, and to Mr. L. E. Davey for pathological work in connexion with cases at St. Thomas's Hospital.

The microphotographs reproduced on the photogravure plate were taken by Mr. A. E. Clark, technician to the Department of Pathology at St. Thomas's Hospital. The other photographs were taken by Dr. Macrae.

BIBLIOGRAPHY

Charpy, M. J. (1943). *Bull. Soc. franç. Derm. Syph.*, No. 11, Dec., p. 331.
—— (1946). Ibid., May-June, p. 310.
Dickinson, Lois (1947). *Nature*, **175**, 681.
Dowling, G. B., Prosser Thomas, E. W. (1945). *Proc. roy. Soc. Med.*, **39**, 96.
—— —— (1946). *Brit. J. Derm. Syph.*, **58**, 45.
Emery, M. Quoted by Haserick, J. R., and Michelson, H. E., *J. Lancet*, April, 1947, p. 152.
Levaditi, M. C., and Po, L. Y. (1930). *Bull. Acad. Méd.*, **103**, 509.
Marre, I. R. (1946). *Proc. roy. Soc. Med.*, **40**, 10.
Russell, B. F. (1946). Ibid., **40**, 10.
Steenken, W., and Baldwin, E. R. (1937). *Proc. Soc. exp. Biol., N.Y.*, **37**, 348.
Tomlinson, K. L. (1947). *Lancet*, **2**, 399.

One further number of *Soil and Health*, which was edited by the late Sir Albert Howard, will be issued as a memorial number. Those interested should write to Miss E. B. Kirkham, The Rise, Milnthorpe, Westmorland.

HYPERTENSION—AETIOLOGY AND SURGICAL TREATMENT

BY

GEOFFREY BOURNE, M.D., F.R.C.P.

Physician and Officer in Charge of Cardiology Department, St. Bartholomew's Hospital

[WITH PHOTOGRAVURE PLATE]

A large number of patients suffering from hypertension have now been treated surgically in various clinics. A good review of the results up to date is given by James L. Poppen and Charles Lemon (1947) on the surgical side, and by Robert Sterling Palmer (1947) on the medical side. The present communication is founded upon a small number of cases, but certain of the observations made in it, when considered in relation to the recent work of Trueta and his co-workers at Oxford, provided a stimulus for regarding the subject anew from the point of view of aetiology.

Hitherto the cause of hypertension has remained obscure, and the approach to the problem of treatment has been largely empirical. There has indeed been an absence of any comprehensive explanation of why the blood pressure is raised in these cases throughout their whole course, although the work of Goldblatt (1937–8, 1938, 1946, 1947) has added greatly to our knowledge of the subject, particularly when definite renal disease is demonstrable. Renal ischaemia has been shown to produce a pressor substance—renin—which by its action on the plain muscle of the middle arterial coat produces general vasoconstriction in the arterial system, thus raising the blood pressure. There have also been a small number of human cases with renal disease present in only one kidney, the removal of which lowered a previous persistently raised blood pressure. But this sequence—*organic* renal disease, renin, and hypertension—cannot be adduced to explain why the majority of cases should show a raised blood pressure throughout the earlier and greater part of their course. Biopsy of a large number of kidneys in such cases does not reveal any renal abnormality (Castleman and Smithwick, 1943).

The recent work of Trueta and his fellow workers (1947) has thrown some light on this gap in our knowledge of hypertension. By experimental work on animals they have proved that an extreme degree of cortical renal ischaemia can be temporarily produced by vascular spasm. Furthermore, during this stage of cortical spasm the blood is by-passed through the juxta-medullary glomeruli back into the vasa recta and so into the renal vein. The cortical ischaemia is fairly persistent and is produced by various nervous stimuli, but it also can be brought about by a humoral agency such as a posterior pituitary extract. A short quotation from their conclusions runs as follows: "If when the pressor substance is formed in cells situated in the renal cortex, and if anoxia is an essential condition for its production, it follows that the pressor substance will be formed when the cortex becomes ischaemic. It seems possible, therefore, that excessive diversion of the intrarenal blood-flow from the cortex through the medullary by-pass may be an initiating factor in the production of the pressor substance, and thus in the development of human essential hypertension." A further point which provides a parallel with cases of human hypertension is the fact that these workers found considerable individual variation in their animals.

The remarks concerning aetiology which follow constitute an attempt to apply to the problem of hypertension these recent additions to our knowledge of renal function, and must be regarded in that light and not as a proved and accepted series of facts.

Fig. A is an attempt to show the clinical course of an average severe case of hypertension from start to finish. During adolescence the blood pressure is normal, but is subject to considerable transitory increase, chiefly from emotional causes. There is some evidence that hypertension is commoner in later years in these apparently normal young people, who on examination for the Services or for some routine purpose are found to have temporarily an unexpectedly high blood pressure. During rest, and in the absence of emotion, their blood pressure remains normal.

After the age of 20 or 30, the blood pressure starts to increase slightly, but the effect of rest or of sedation is still to bring it down to the normal figure. Emotion during this period will of course also produce a further considerable transitory increase. As years go by the blood pressure increases, the first stage of true disease lasting for a varying period of time into the late thirties and the forties, and, rarely, possibly up to 50 years of age. This first stage of hypertension is not associated with any discoverable change

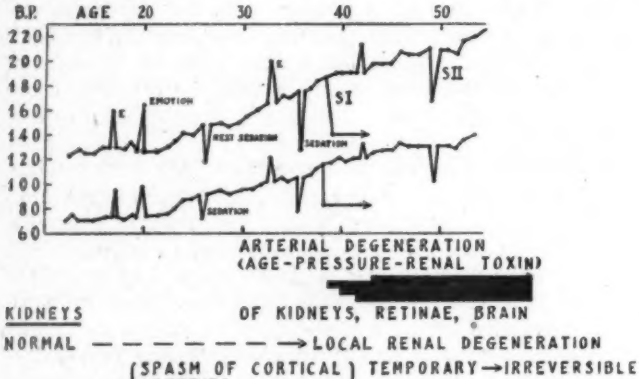


FIG. A.—S.I indicates sympathectomy done before the onset of permanent renal damage. S.II indicates sympathectomy after renal damage has occurred.

in the kidneys, but at the end of this phase arterial degeneration begins. The arterial degeneration is a hyaline medial change, and would seem to be a natural result of senescence, accentuated and rendered premature possibly by the persistently raised blood pressure. Individuals whose arterial structure is of poor quality suffer the degeneration early, whereas those with high-quality arterial tissue suffer the change late, if at all. Moreover, it would seem that nephritis produces a similar softening or degeneration of the arterial middle coat analogous to that produced by advancing years, but of far more rapid development and at almost any age. The arterial change affects the kidneys more than any other part of the body, but also attacks the vessels in the retina, pancreas, small intestine, testis, and suprarenal bodies.

Two Stages

The success of sympathectomy for hypertension (S.I and S.II, Fig. A) is likely to vary greatly according to the stage of the disease and the underlying pathological state, which must therefore be considered separately. During the first stage the increasing blood pressure may well be caused solely by spasm of the renal cortex, at first transitory, but later continuously involving varying areas of the renal cortex for most of the 24 hours. During the second stage permanent organic renal disease will result from arterial degeneration, and will constitute a permanent source of renal cortical anoxaemia. Thus in each of these two stages the hypertension can be explained on the renin theory; in both stages the renin comes presumably from transitory cortical spasm, and during the second stage it also comes from permanent cortical ischaemia from arteriosclerosis. It is worthy of note that the hyaline degeneration of the media is scattered in a patchy manner throughout the body, for it is not seen in the muscles or in the skin vessels. This freedom from arterial degeneration over such a big area is a sufficient proof that the raised blood pressure must at all times and in both stages be due to vascular spasm and not to organic vascular obstruction resulting from permanent arterial narrowing.

Stage I.—An example of this stage is provided by the case of a man who at the ages of 15 and 17 was found to have a high blood pressure. At 22 the figures were 240/160, at 32 they were 180/140, and at 37 they were 194/124. During the whole of this period he has lived a normal life, playing rugby football as a young man and being busily engaged in business during his later years. In addition he was an active fire-watcher during the war. For the whole period of time, 22 years in all, he has been free from symptoms. This type of case is commonly met with, and the symptoms in such cases often seem to be due more to the anxiety aroused by medical advice, or by apprehension, than by the disease itself. Certain definite deductions would appear to be legitimate from these cases. The long-sustained increase of the arterial pressure as such would seem to have no deleterious effect either on the arteries or on the heart. It is true that hypertrophy of the arterial media occurs, but the lumen of the vessels remains normal. It is also true that hypertrophy of the left ventricle occurs, but there is no evidence of any cardiac disability or failure. During these earlier years of life no degenerative effect intervenes.

Stage II.—The first essential cause of the medial degeneration seems to be a change in the vessel wall produced either by the natural degenerative tendency of advancing years or, in a few young individuals, by nephritis. The second is the trauma produced by the continued high arterial pressure. It would seem, arguing from the type of case described above, that this second factor of trauma is alone not enough to produce the degeneration. It is noteworthy, particularly from the clinical point of view, that the changes produced in the arteries are identical in the retina and in the kidney, but pathological and post-mortem investigations prove that the renal arterial changes are more advanced than are those of the retinal vessels. Although pressure seems to rank second to degeneration it is very important, for the results of sympathectomy show that release of the pressure allows a rapid regression of the retinal changes. And it is therefore legitimate to assume that a similar regression can occur to some extent in the renal arteries.

Hypertension in Nephritis

Two cases are described at this point because, although not cases of primary hypertension, they shed some light upon the effect of sympathectomy on the lesions found in essential hypertension.

These patients were both young men, aged 23 and 21, and in each case the speed of onset of the hypertension was rapid and the renal function poor. They had previously been accepted as fit for the R.A.F. and Army respectively, in which they had served as healthy men. In each at the time of medical investigation retinitis was present of the grade-IV degree—that is, with haemorrhages and exudate and papilloedema. In the first case the length of history of symptoms was 12 months and in the second case three months. They were both treated by sympathectomy: bilateral removal of the sympathetic chain D6 to L1, and excision of the greater and lesser splanchnic nerves. Sympathectomy was done in the first case because it was difficult to decide whether it was one of malignant hypertension or of chronic nephritis, and it was felt that since the outlook was hopeless it was right to give him the benefit of the doubt by operation. Subsequent review makes it probable

that the case was in fact one of chronic nephritis and not of primary malignant hypertension. The second case was definitely one of chronic nephritis with a similar clinical picture.

Fig. B shows the effect of sympathectomy in the first case. The blood pressure has been lowered and remains lower six months from the date of the second operation. The renal

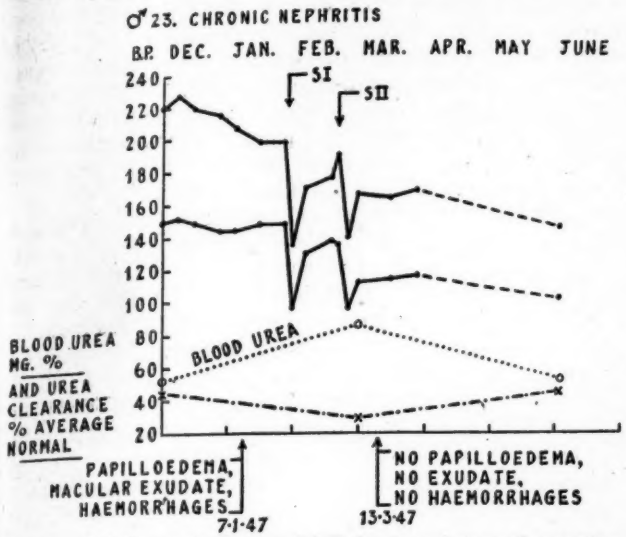


FIG. B.—S.I indicates the first and S.II the second stage of operation.

function has not been diminished, proving that there was no quantitative relationship between the height of the blood pressure and the renal function. The retinitis disappeared to a great extent in three weeks as a result of the lowered blood pressure. This retinal change is most significant, for, as already mentioned, the vascular changes in the kidneys are analogous to those in the retina. Moreover, the clinical improvement after operation suggests that a corresponding improvement has also occurred in the renal arterial system. It is noteworthy that Trueta and his colleagues found that splanchnic sympathectomy caused cortical flushing in their experimental animals and prevented to a great extent the cortical spasm induced by their various experimental measures. Fig. C shows the effect of

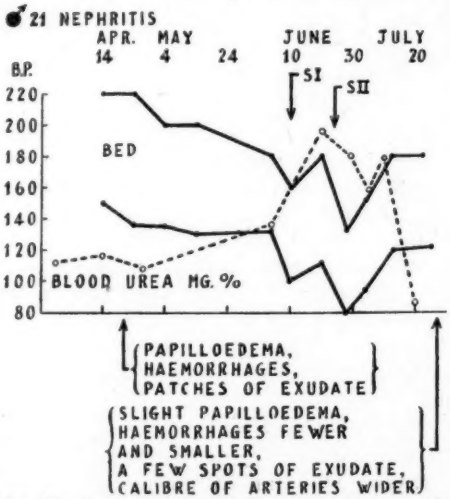


FIG. C.—S.I indicates the first and S.II the second stage of operation.

operation in the second case, the blood urea being lower after operation than it was before. Here too there has been a great improvement in the state of the retinae.

The Heart

The term "hypertensive heart disease" has come into general use, but it would seem as though the label is not quite correct, however useful it is. In the first stage of hypertension the raised blood pressure as such seems to have no effect upon an otherwise normal heart except by producing hypertrophy. Medial coronary hypertrophy is the only abnormality, the lumen of the coronary vessels remaining normal. Patients with hypertension in this stage who have died from some other cause have been carefully examined, and there is an absence of any hyaline degeneration in the coronary system (personal communication of Prof. W. G. Barnard). The amazing persistent health of the heart after working for years against a much-raised peripheral resistance may perhaps be explained to some extent by the following considerations. First, the coronary flow is diastolic, so that the trauma from the full impact of the hypertensive pulse wave does not directly affect the coronary vessels Secondly, the effect of adrenaline on the peripheral arteries is to constrict, and on the coronary arteries is to produce dilatation; it is a reasonable hypothesis that this paradoxical mechanism may also occur with other biochemical pressor substances, such as the renin in

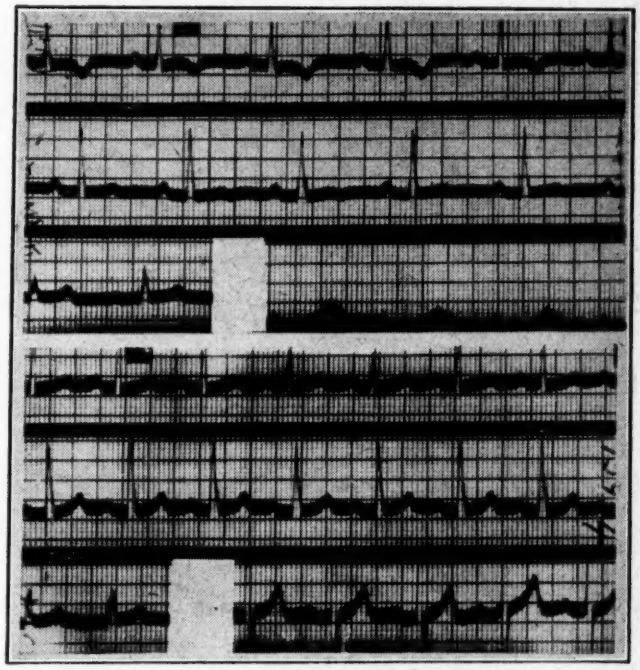


FIG. D.—Electrocardiogram in man with hypertension before and after lumbar sympathectomy, showing disappearance of signs of left ventricular stress. First operation, Jan. 31, 1947; second operation, Feb. 21. Electrocardiograms taken on Jan. 14 and March 3.

hypertension. The electrocardiogram at a later stage of the disease begins to show the typical picture of left ventricular stress (Fig. D).

In those cases investigated at St. Bartholomew's Hospital which showed this change there was a return to the normal picture very quickly after sympathectomy. The time taken for this change back to normal was from ten to fourteen days after sympathectomy. The picture of left ventricular stress would appear to be due to some general functional change of the muscle as a whole rather than to local structural coronary abnormality, for the abnormal cardiogram is often present in the absence of dyspnoea or of undue enlargement, and the pattern of the change is very constant, in contradistinction to the varying appearance produced as a result of local coronary infarction. One case of cardiac disease in a hypertensive patient is worthy of particular mention.

A woman aged 44 had been suffering from increasing shortness of breath and headache for one year. The blood pressure was 198/114, and the electrocardiogram showed a left bundle-branch lesion (Fig. E). The retinae and renal function were both normal. Five months after sympathectomy the blood

pressure was 138/90, the dyspnoea had subsided, and in her own words "she could now do anything." The electrocardiogram was relatively unchanged. The bundle-branch lesion was not a result of coronary infarction, for there was no history of any such illness or any complaint of anginal pain. The latter two coronary conditions seem, in the experience of other observers, to contraindicate sympathectomy in hypertensive cases.

A second case of particular interest, kindly referred to me by Dr. Graham Hayward, was that of a man aged 24. He was

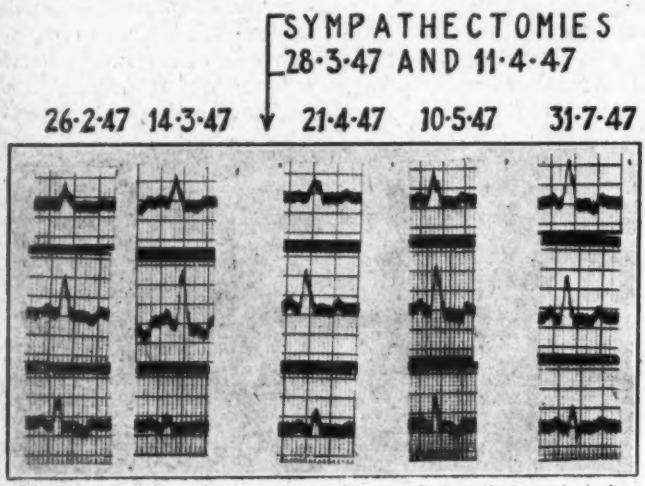


FIG. E.—Tracings from a case with a left bundle-branch lesion. The first two curves are before sympathectomy and the last three after sympathectomy. The T-waves in leads I and II have become upright or diphasic after sympathectomy. The bundle-branch defect itself remains unaffected.

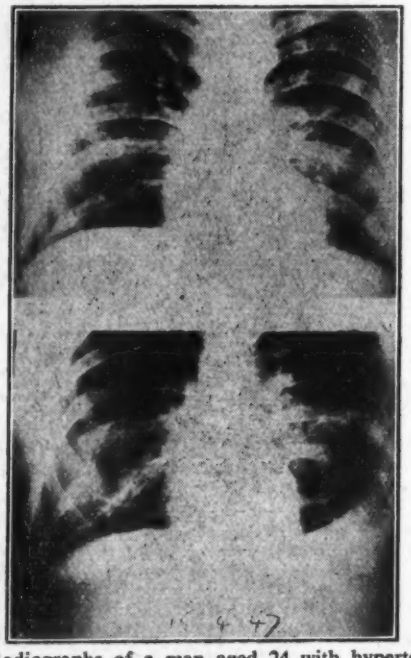


FIG. F.—Radiographs of a man aged 24 with hypertension, previous and subsequent to sympathectomy. First operation, Dec. 5, 1946; second operation, Dec. 27. Radiographs taken on Nov. 5, 1946, and April 15, 1947.

unduly adipose, weighing 235 lb. (105.6 kg.). His chief complaints were shortness of breath and headaches. He was fully investigated, but no other evidence of pituitary disease was found. There was no sign of myxoedema. His blood pressure was 180/120, and it fell to normal after sympathectomy, and remained so, the latest figures after seven months being 134/74. Fig. F shows his cardiac outline before and after sympathectomy. The reduction in heart size is striking. This at first sight would seem to be a case in which the heart had been enlarged in stage I by the hypertension alone, returning to normal after the lowering of the blood pressure. But his adiposity was certainly pathological, and probably some additional undiscovered factor or factors were involved in the considerable hypertensive cardiac enlargement.

Sympathectomy

The effect of sympathectomy upon hypertension appears to vary considerably from case to case. The general experience hitherto seems to be that the operation is most successful in younger patients, particularly those below 40 and those in whom the diastolic blood-pressure figure is considerably raised, so that there is a comparatively small pulse pressure. On the whole patients over 50 respond to the operation only for a short period and not to a great degree, as judged by the lowering of the blood pressure. The operation is usually unhelpful in patients with advanced cardiovascular or renal disease, but even here exceptions occur, especially in the younger age groups. Previous to operation various tests have been applied with a view to trying to determine the extent of lowering of blood pressure likely to be achieved by sympathectomy. The sodium-amytal test, 3 gr. (0.2 g.) for three doses at intervals of an hour, often causes the blood pressure to fall considerably to a level which seems to be to some extent comparable with that likely to be achieved by sympathectomy.

In addition to these tests the following investigations are always done. Retinoscopy by a skilled ophthalmologist, complete examination of the urine, the urea-clearance test,

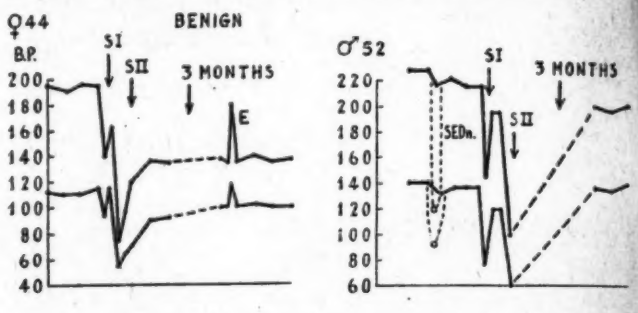


FIG. G.—Blood-pressure chart of a woman aged 44, showing successful result after sympathectomy.

FIG. H.—Blood-pressure chart of a man aged 52 whose response to sympathectomy was only temporary.

the urine-concentration test, an electrocardiogram, radioscopy of the heart, and sometimes an intravenous pyelography. The family history is of the greatest importance, and the patient's age is a valuable general guide. The clinical picture must be correlated and carefully considered as a whole. A further indication for sympathectomy is a definite change for the worse in a closely observed case in which the blood-pressure condition has previously remained stationary. The cardiac indication is a deterioration in the cardiac function in an otherwise suitable case, as measured by increasing dyspnoea, a changing electrocardiographic picture, and an increase in the size of the heart by careful measurement. But coronary disease is a contraindication to sympathectomy for hypertension.

Many observers seem to agree that the presence of malignant hypertension with rapidly advancing retinal changes constitutes a definite emergency indication for the operation, not only with the idea of saving vision but because, especially in young people, good results have been recorded. The effect of sympathectomy is shown in a satisfactory case (Figs. G and H), and in a patient in whom the blood pressure rose again nearly to its pre-operative level within three months (Fig. H). In the first patient sympathectomy presumably released the cortical spasm and thus prevented a further excessive production of renin. There was here no permanent renal lesion from which such a production of renin could subsequently occur. But it is noteworthy that

FIG. 1.—Widespread oedema of articular cartilage producing nodular appearance. Small central ulcer with protuberant degenerate cartilage.

FIG. 2.—Widespread oedema, extensive ulceration, and some projecting tags of degenerate cartilage.

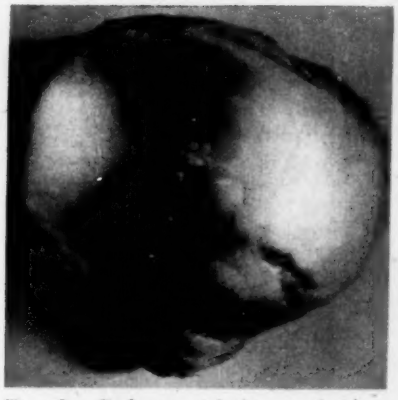


FIG. 3.—Oedema, striation, and some projecting nodules. Shallow ulcer in lower part of external facet.

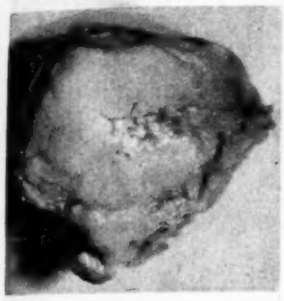


FIG. 4.—Extensive shallow ulceration.

FIG. 5.—Widespread oedema, change of colour, central ulcer, cartilage tags.

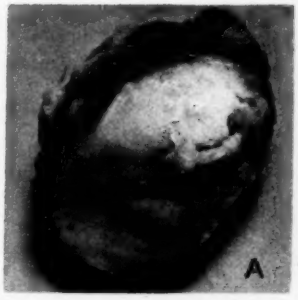


FIG. 6.—A. Oedema and striation; prominent tags of degenerate cartilage. B. Deep cleft in articular cartilage of internal facet.

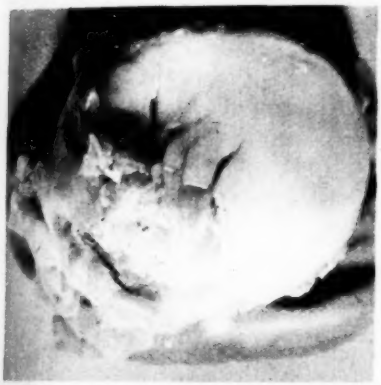


FIG. 7.—Widespread ulceration, numerous deep clefts splitting the cartilage into overlapping laminae.

FIG. 8.—Striation and superficial ulceration. A pedunculated lamina of cartilage elevated in the form of a flap.

FIG. 9.—Section showing oedema and fibrillation of articular cartilage.

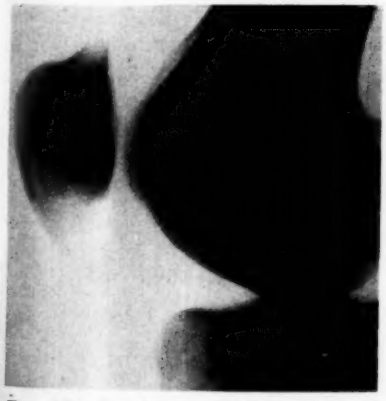


FIG. 10.—Erosion and indentation of articular cartilage.

FIG. 11.—Localized prominence of articular cartilage.

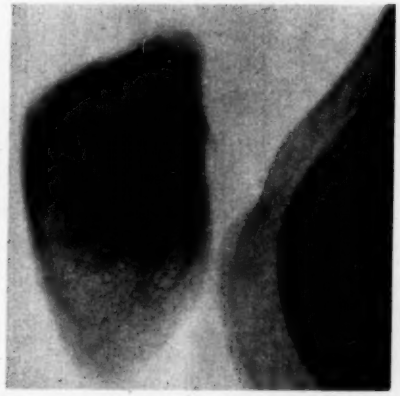


FIG. 12.—Showing an elevated flap of articular cartilage.

FIG. 1.—Biopsy, Feb. 15, 1947, before starting treatment. A tuberculous focus (× 90).

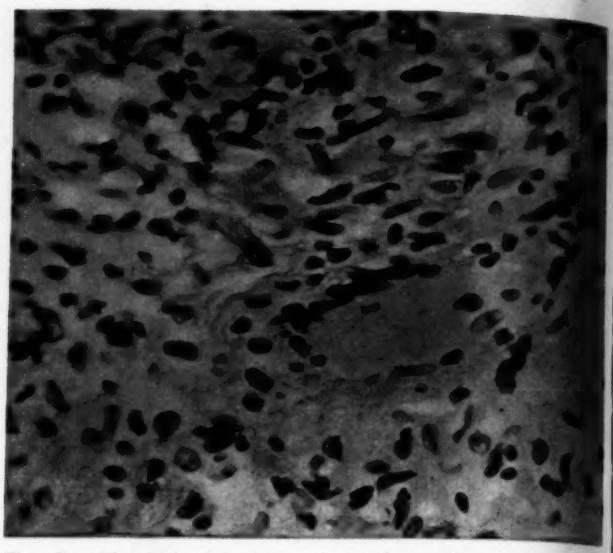


FIG. 2.—Also Feb. 15. Part of the giant-cell system (× 420).

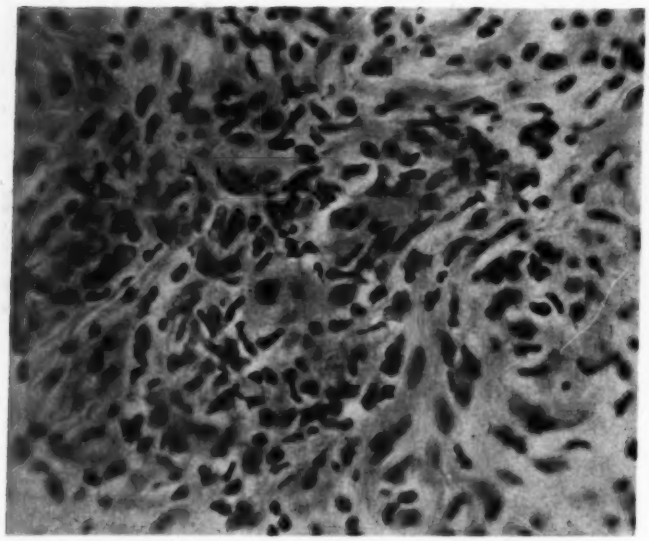


FIG. 3.—April 16. Invasion of the giant-cell system by histiocytes (× 420).

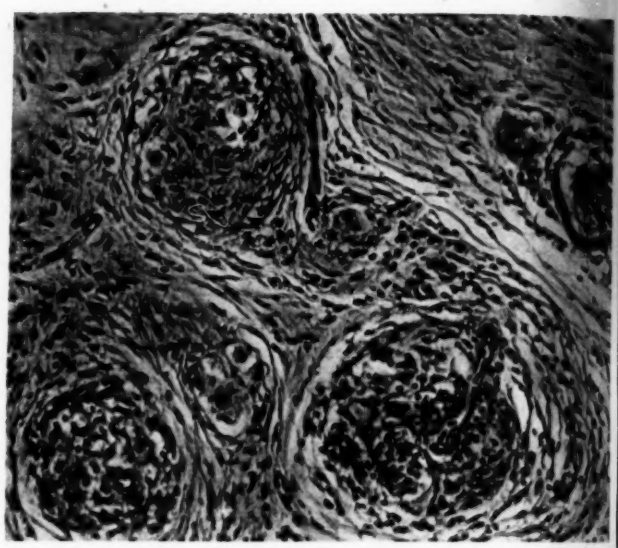


FIG. 4.—April 30. Development of fibrous tissue separating the giant-cell systems one from another (× 250).

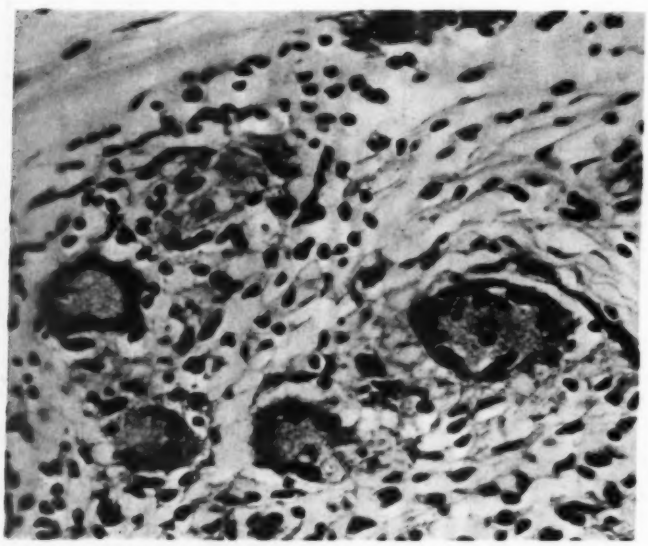


FIG. 5.—May 21. Separation of giant cells by the newly formed connective tissue (× 420).

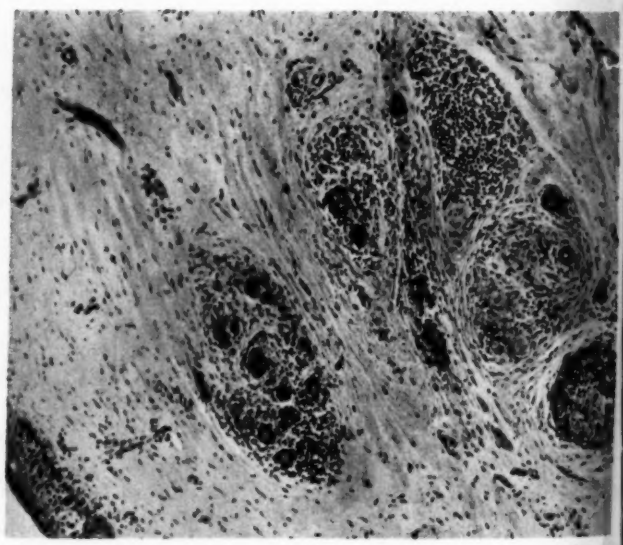


FIG. 6.—Also May 21. Showing disappearance of endothelial cells and giant cells from the tuberculous lesions (× 90).

HYPERTENSION—AETIOLOGY AND SURGICAL TREATMENT: GEOFFREY BOURNE

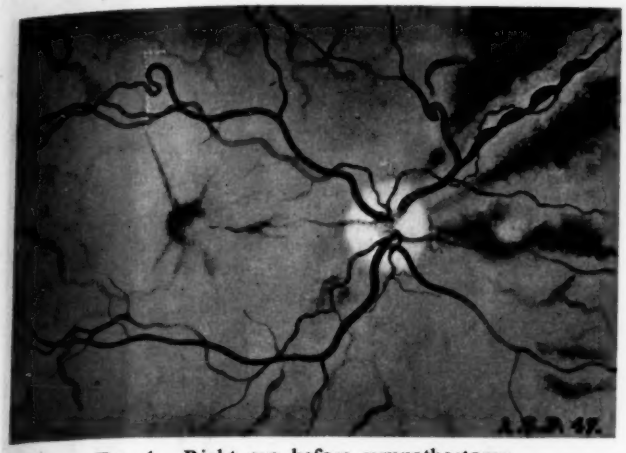


FIG. 1.—Right eye before sympathectomy.

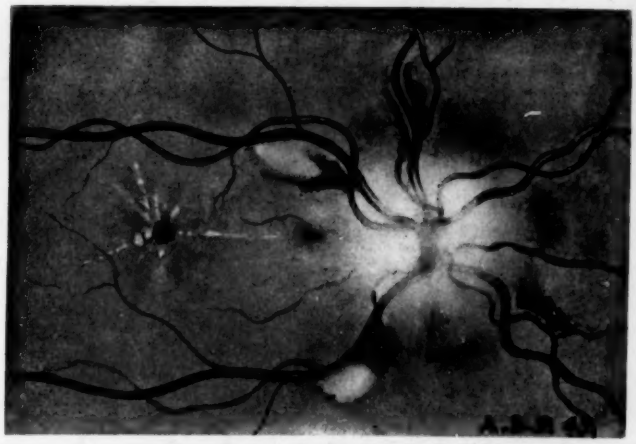


FIG. 3.—Renal retinopathy pre-sympathectomy.

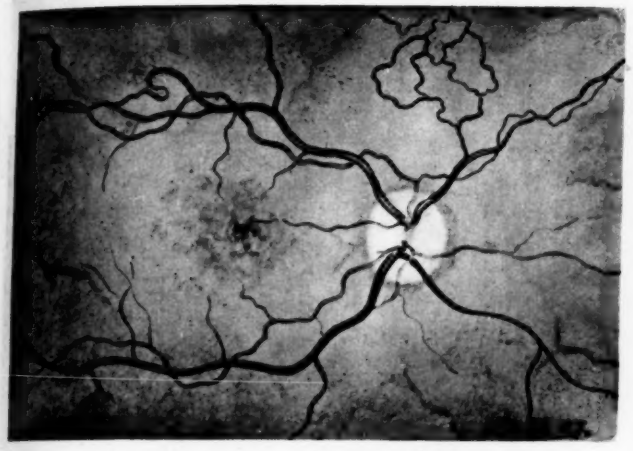


FIG. 2.—Same eye after sympathectomy.

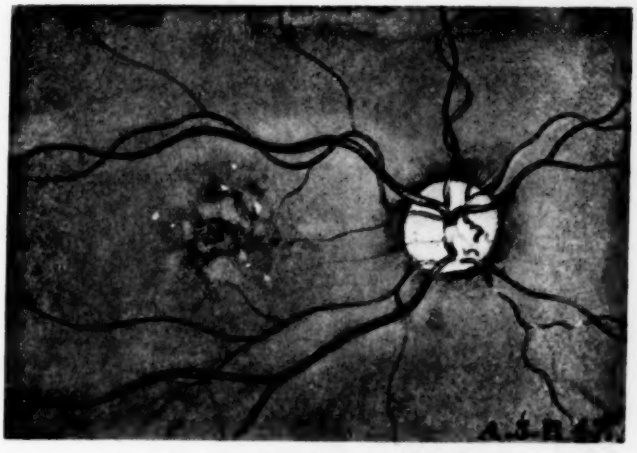


FIG. 4.—Same eye after sympathectomy.

ROLE OF SYMPATHETIC NERVE IN CANCEROUS PAIN: MARCEL DARGENT

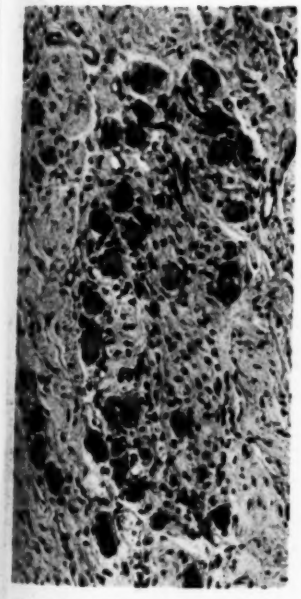


FIG. 1.—Cluster of lymphocytes around sympathetic ganglion cells.

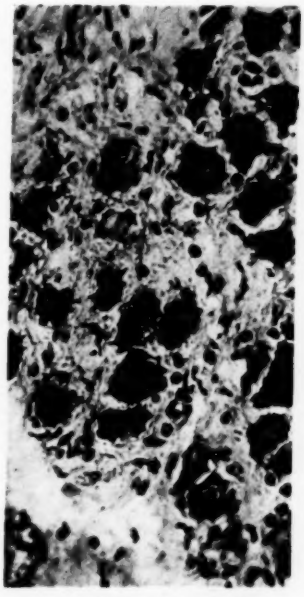


FIG. 2.—Alterations of protoplasm in ganglion cells. Pyknosis of nuclei.

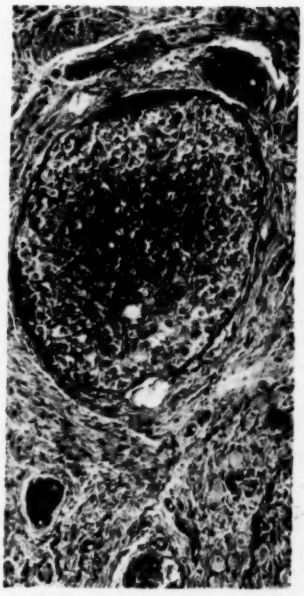


FIG. 3.—Carcinoma tongue. Metastatic node in sympathetic ganglion.

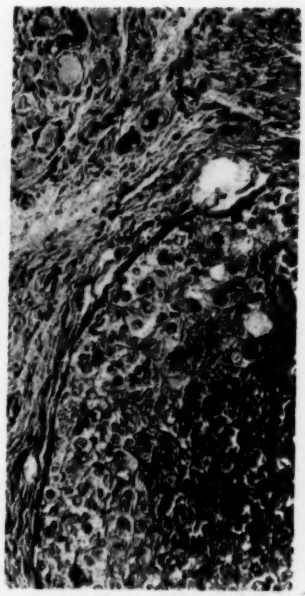


FIG. 4.—Relation between the metastatic node and arteriolar wall.

"TEMPORAL ARTERITIS." SOME ASPECTS OF SUBACUTE ARTERITIS IN LATER LIFE: G. H. JENNINGS

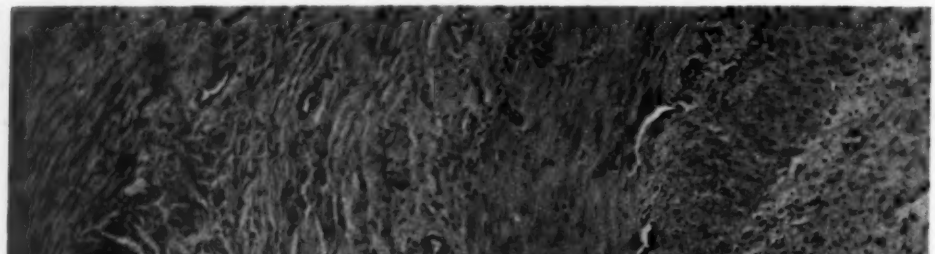


FIG. 1.—The early changes of temporal arteritis. (Case 3.)

FIG. 2.—Fibroblastic and giant-cell reaction in media. (Case 4.)

ASEPTIC NECROSIS OF PANCREAS: WALTER PAGEL AND A. L. WOOLF

FIG. 1.—Pancreas. Central area between arrows shows confluent anaemic infarction.

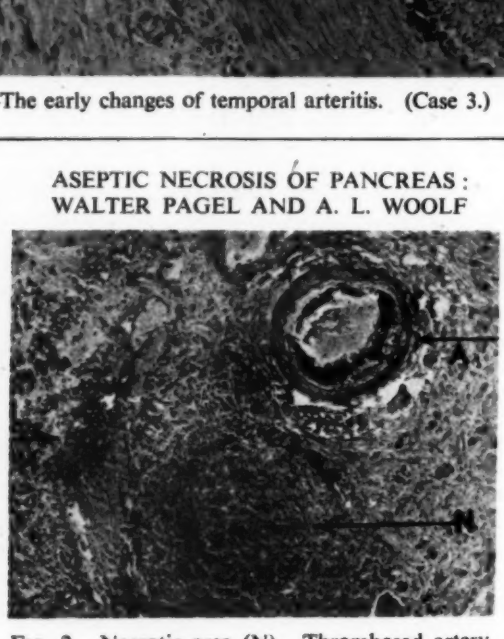
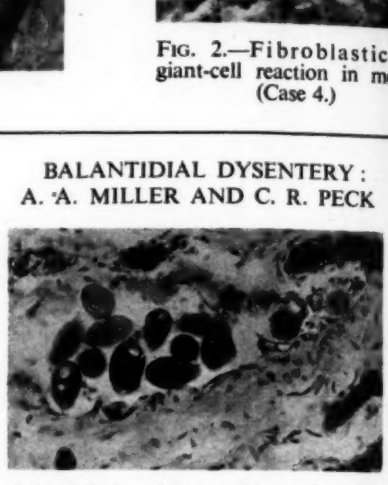


FIG. 2.—Necrotic area (N). Thrombosed artery (A). Zone of haemorrhagic and leucocytic demarcation (H) (× 50).

BALANTIDIAL DYSENTERY: A. A. MILLER AND C. R. PECK



Balantidia in submucosal space (× 150).

INTRAUTERINE RUPTURE OF CORD: G. BANCROFT-LIVINGSTON

Gross deficiency of anterior abdominal wall with exteriorization of abdominal contents and a short umbilical cord. (Case 2.)

SYNOVIOMA: V. C. J. HARRIS

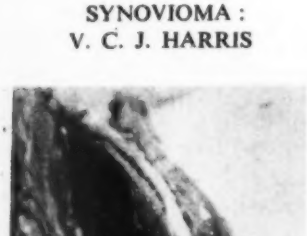


FIG. 1.—Tumour of calf muscles after amputation. (Case 2.)

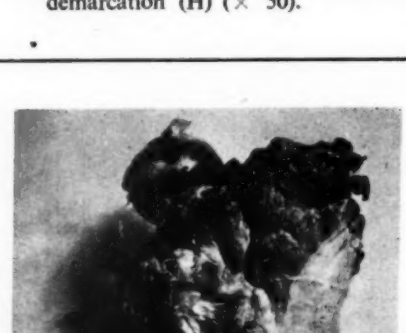


FIG. 2.—Tumour of thigh after amputation. (Case 3.)

Illustrations printed in Collogravure by HARRISON & SONS, LTD., Printers to His Majesty the King, London, Hayes (Middx.) and High Wycombe.

even in such a case emotion can send up the blood pressure for the time being, possibly through that part of the sympathetic nervous system which still remains untouched. In this patient a low blood pressure after operation was not merely a result of vascular laking of blood in the splanchnic area, for at the end of three months there was no residual orthostatic hypotension.

Temporary Lowering of Blood Pressure

Fig. H shows a lowering of the blood pressure immediately after operation, partially due to the release of cortical renal spasm, but also to the laking of blood in the abdominal area. The reappearance of hypertension in this case was no doubt due to a resumption of renin formation by the permanently diseased renal tissue. Trueta and his colleagues have found in such patients histological evidence of the permanently established by-pass mechanism already described by which some blood is permanently diverted from the renal cortex; thus a chronic cortical ischaemia may persist to some extent as a purely mechanical effect whether spasm be released or not.

In this second class of case it is still not easy to explain why there should be even a temporary improvement, for at first sight there should be no diminution of renin formation in the permanently damaged kidney. Fig. J is an

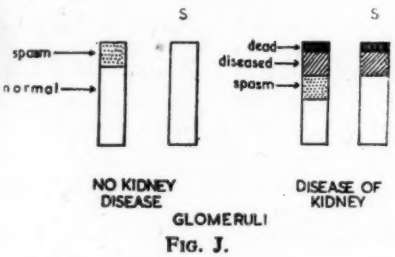


FIG. J.

attempt to offer an explanation for this. The first two rectangles suggest what happens in the satisfactory class of case as a result of sympathectomy (stage 1 of hypertension). The cortical spasm which has produced the renin is removed by the renal sympathectomy. Splanchnic laking of blood also occurs. The blood pressure is therefore lowered permanently. The other two rectangles diagrammatically show the state of affairs when chronic renal disease is present (stage II of hypertension). Neither the dead nor the normal renal tissues are concerned in the hypertensive process. In this case as well as in the previous one glomerular spasm is present and is beneficially affected by sympathectomy. It is the presence of diseased renal tissue, shown by the oblique lines, that distinguishes this type of case from that in which sympathectomy produces a satisfactory result. Sympathectomy will in both cases lower the blood pressure temporarily and greatly by producing a laking of blood in the splanchnic area, an effect which is additional to the effect on the renal cortex. Such lowering of the blood pressure can cause regression and temporary healing of the diseased blood vessels as shown in the retina.

This improvement may also to some extent benefit the renal arteries, and thus may temporarily reduce the area of active advancing renal disease to a degree sufficient to reduce the output of renin to an inconsiderable amount. But within a period of weeks or months the permanently diseased but not dead cortical tissue is enough to produce once more an increasing output of renin, which will cause a return of the hypertension with renewed renal spasm. This renewed renal spasm will in its turn manufacture more renin, with a return of the blood pressure to its former high level. The permanent by-pass mechanism of Trueta is also likely to be a factor in the resumption of cortical ischaemia in chronic renal arterial disease.

Figs 1 and 2 on the Photogravure Plate show water-colour drawings, by Mr. A. Seymour Philps, of the right eye of a man aged 50 before and after sympathectomy. Mr. Philps reports as follows: "There are very great changes, and the improvement after operation is considerable. Fig. 1 shows marked haemorrhages and oedema of the whole retina, especially evident at the macula, which is pushed forward by fluid from behind. In Fig. 2 all signs of haemorrhage and oedema have disappeared. Changes at the macula in this picture are those normally following inflammation or swelling, and are due to pigment disturbance. Venous network above is caused by dilatation of collateral circulation following venous thrombosis. The optic atrophy has developed as a result of the oedema, and so the patient's vision is below 6/60 and will remain so. I could not make out that the retinal arteries had changed at all in calibre between the two examinations, and it will be noted how fine they are, especially near the disk."

In another case Mr. Philps was again responsible for the water-colours (Plate, Figs. 3 and 4), and Mr. Rupert S. Scott reported on Jan. 7, 1947: "In spite of the fact that the retinal changes are present in hypertensive cases I prefer to label this condition renal retinopathy. There is a slight degree of oedema of the disks, and much change in the macular area of the retinae in the form of soft patches of exudate and superficial haemorrhages. At the right macula there is seen a well-marked macular fan. The retinal arteries show attenuation." (Fig. 3.)

Mr. Scott saw this patient again on March 13, 1947, after sympathectomy, and wrote: "Apart from some oedema of the lower margin of the left, the optic disks appear physiological. The haemorrhages and patches of soft exudate previously seen in the retinae have now disappeared; the macular fan persists in the right eye, and a less-marked one is present in the left eye. The retinal arteries exhibit a slight increase in brightness of the light reflex but otherwise appear in good condition." (Fig. 4.)

Indications for Sympathectomy

It is interesting and useful to consider the probable indications for sympathectomy in the light of what we know, or with what we seem to have learnt, from recent work concerning the factors producing hypertension. During the early years of the disease the blood pressure increases and remains high, often without symptoms and certainly without organic renal disease. If sympathectomy were performed in such a case as the one previously described belonging to this group it is clear that operation would not be effecting any useful purpose so far as symptoms were concerned. Since the condition at this stage may remain symptomless for a number of years it is equally probable that sympathectomy would not be a justifiable measure from the point of view of the underlying pathological process. If a sympathectomy were done too soon regeneration of the sympathetic paths might occur, and a second sympathectomy would be rendered much more difficult later in the disease, when the effect of the operation would be more beneficial. Hypertension may remain symptomless for over 20 years, and so far the experience of the operation extends only to 10 years at the outside. There would thus seem to be no indication for sympathectomy during most of the earlier part of stage 1 of hypertension. On the other hand if operative treatment is delayed until the time when permanent arterial degeneration has occurred in the kidneys, producing in them a permanent source of renin, it would equally seem to be true that the measure has been delayed too long. It would logically follow that careful investigation and observation of a patient with hypertension should have as their chief aim the determination of the following two points: the previous duration of the disease, and an estimation whether it is in a stationary phase or whether there is the slightest indication of recrudescence or exacerbation.

There is at present no clinical test available which will enable us to judge the position exactly, but it is probable that a periodic thorough and careful investigation of the retinal arteries by a skilled ophthalmologist is likely to provide the best guide to whether the onset of arterial degeneration is beginning to threaten. A periodic careful investigation of the renal function is also desirable in such cases. Finally, every case must be considered on its individual merits—general, cardiological, renal, familial, and psychological.

The author would like to express his great indebtedness to Mr. E. G. Tuckwell for his very helpful and stimulating surgical co-operation.

REFERENCES

Castleman, B., and Smithwick, R. H. (1943). *J. Amer. med Ass.*, **121**, 1256.
Goldblatt, H. (1937–8). *Harvey Lect.*, **33**, 237.
—— (1938). *J. exp. Med.*, **67**, 809.
—— (1946). In Goldring and others, *Experimental Hypertension*, Academy of Sciences, New York.
—— (1947). *Physiol. Rev.*, **27**, 120.
Palmer, R. S. (1947). *J. Amer. med. Ass.*, **134**, 9.
Poppen, J. L., and Lemon, C. (1947). Ibid., **134**, 1.
Trueta, J., *et al.* (1947). *Studies of the Renal Circulation*, Blackwell Scientific Publ., Oxford.

ROLE OF SYMPATHETIC NERVE IN CANCEROUS PAIN

AN INQUIRY ON 300 CASES

BY

MARCEL DARGENT

Surgeon to the Centre Anticancéreux de Lyon

[WITH PHOTOGRAVURE PLATE]

The question of pain-relieving operations on the sympathetic nerve in patients with evolutive carcinoma has been widely discussed. Although by experiment we have acquired much information concerning some of the functions of the sympathetic nervous system, a yet clearer view of its sensory functions may be obtained by a study of operative results and the anatomico-pathological findings in relation to this particular cancerous pain. Indeed, some of these operations have been performed in France as an empirical attempt to relieve pain in desperate cases : they have been only partly successful.

Spinal-cord surgery, as advocated by Putnam in the U.S.A. and Leriche and Wertheimer in France, is based on well-defined experimental facts, and consequently holds an important place in "pain surgery," as did radicotomy in the past.

This inquiry, which I started in 1940 under the direction of M. Leriche and have since pursued, has enabled me, first, to gather anatomico-pathological data ; secondly, to define the clinical features of sympathetic pain ; and, thirdly, to determine the limits of such operations. I do not intend here to describe the anatomical sensory pathways in the sympathetic trunk but simply to record clinical facts derived from experience.

At first, after a successful cocaine infiltration test, I performed surgical sympathetic-nerve resections—12 on the lumbar trunk and 26 on the cervical. As only temporary relief was obtained I gradually gave up this operation, as I found that repeated cocaine infiltrations had produced more lasting results. I have performed over 300 infiltrations of cervical, thoracic, and lumbar parts of the sympathetic trunk, but shall not describe the technique used, as it is well known. I employ 20 to 40 ml. of a 1% solution of "scurocain."

The use of alcohol I have found to be dangerous, as it often produces such intense irritation in the sympathetic ganglia that the results may be worse than the initial condition. It seems preferable to use repeated cocaine infiltrations.

Anatomico-pathological Data

Macroscopic and microscopical investigations of ganglia removed at operation have disclosed the existence of actual disease of the ganglion in patients undergoing pain. This fact was revealed in two different areas. First, when removing the lumbar trunk in women suffering from carcinoma of the cervix I found it to be tightly encircled by big lymph nodes extending all along the inferior vena cava or the aorta, just in front of the vertebrae and the anterior part of the psoas muscle. Often after radium therapy these patients were apparently healed as regards their pelvis, and the cancerous extension seemed to originate in the lower part of the lumbar column. The sympathetic ganglia were oedematous, with considerable congestive reactions in the surrounding area. Surgical removal was usually very difficult. Once there even occurred a wound of the inferior vena cava. The small veins passing under the psoas arches would often give rise to troublesome haemorrhages. Secondly, in the neck, when removing the upper sympathetic ganglion, I found it to be closely connected with the big lymph nodes, often suppurative, owing to carcinoma of the tongue, tonsils, or cavum, and lying under the sterno-cleido-mastoid muscle, before the splenius capitis.

I have given up removing the cervico-dorsal ganglion in malignant process due to carcinoma of the breast, having witnessed elsewhere an attempt which proved unsuccessful.

All these oedematous ganglia were submitted to microscopical examination. Arteriolitic lesions were found, with hyalinization of the media. But the most striking fact was the presence of thick clusters of lymphocytes around the sympathetic cells even when no drugs had been previously injected (Plate, Fig. 1). On further examination it was seen that the cells had irregular borders, granulous protoplasm, and a pyknotic nucleus (Fig. 2). These lesions were surrounded by normal areas, thus constituting signs of sympathetic-cell agony.

Examination of the upper sympathetic cervical ganglion revealed in one case a very curious fact :

In a 56-year-old man—in perfect condition after treatment four years earlier for carcinoma of the tongue—a big malignant lymphatic tumour was found to progress in the upper portion of the neck. Pain was intolerable. Microscopical examination of the ganglion removed by sympathectomy showed several carcinomatous areas in the centre (Fig. 3). It was not exactly a direct involvement of nervous tissue but a metastatic growth in the lumen of the small vessels of the ganglion (Fig. 4), partially obturated by inflammatory thrombosis.

Further anatomico-pathological data have been supplied by arterial surgery. It is well known that the arterial wall, when irritated, may be the origin of sympathetic pain. Here again we have found evidence of the arterial origin of pain.

Having operated upon a man who three weeks earlier had undergone ligation of the common carotid artery and resection of the upper sympathetic cervical ganglion, which proved ineffective after a three-weeks success, I found a thrombosis of the carotid bifurcation. Arteriectomy of the three carotids was then performed. This patient had cancer of the tonsil, with a large lymphatic node. Microscopical examination showed important lesions of the intima, and an organized clot was adherent to it. The tunica adventitia also was injured. After the operation pain was abolished during the two months that preceded death.

I have since examined arteries of other suffering patients. I have never found any thrombosis (which in the above case could only be explained by the ligature), but I have often

detected inflammatory or neoplastic growths in the tunica adventitia. This was observed especially in the facial and occipital arteries. Also I have always found the primitive iliac artery closely surrounded by hard neoplastic nodes, secondary to carcinoma of the cervix.

Besides these essential anatomico-pathological facts showing evidence of the sympathetic origin of this particular kind of pain two other less important facts may be mentioned. The first is the influence of sympathetic innervation on the conduction of sensibility along the peripheral nerves. On infiltration of the upper cervical ganglion anaesthesia of the cheek is observed to disappear for a few hours in patients with cancer of the upper jaw. These effects last but a short time and are not of enough therapeutic value to justify sympathetic operations for pain by compression of peripheral nerves. The second fact is the participation of periosteal nerve-branches in pain due to certain osteolytic bone metastases. In two instances when *x*-ray therapy was not available I performed cocaine infiltrations—once on a lumbar vertebra involved by a metastasis from breast carcinoma, and a second time on a similarly involved ischium. The result may be compared to that of an infiltration in the case of a sprain : it does not last long, and *x*-ray therapy, as an antalgic treatment, is far more reliable. In this case infiltration is but an emergency procedure pending the utilization of *x* rays.

To sum up, anatomical lesions are to be found in the sympathetic trunk and ganglia, as well as signs of reaction in the arterial wall in contact with cancerous lymph nodes—which explains the sympathetic origin of pain in some cases of evolutive cancer. The participation of the sympathetic nerve in pain due to compression or involvement of peripheral nerves, as also in pain produced by periosteal lesions, is of a much more accessory character.

Some Clinical Features of Sympathetic Pain

Prolonged observation of our patients and a close survey of the effects, whether satisfactory or not, following the infiltrations which I performed, at first as a routine, have led me to consider the features of this type of pain. Two are quite definite. They are as follows.

1. The first is encountered in the evolution of cancer of the cervix. In many cases the primary lesion is healed and the patients suffer from one-sided pain, in the buttock, the lumbar region, the posterior part of the thigh, and often in the leg. They speak, wrongly, of sciatica. But in reality they undergo paroxysmal crises, with a feeling of cold in the leg and numbness of the whole limb. Oscillometric investigations made during the crises showed a curve with a lower level for the injured side than for the opposite one.

This type of pain should be distinguished from other types: (*a*) By *x*-ray examination, from osteogenic pain due to involvement of the pelvic skeleton (which is mainly the case in cancer of the prostate). These patients are relieved by *x*-ray therapy. (*b*) Pain due to pyosalpinx and pyometritis (as shown by Ducuing, in France). In this case local operations may be successful. (*c*) Pain from hydronephrosis, caused by a tight stricture of the ureter. Here, too, operations on the urinary tract are advisable. (*d*) Pain from direct involvement of the obturator nerve, in which paralysis of the maximus adductor muscle is obvious clinically, as is the topography of the pain. (*e*) Pain due to involvement of the lower part of the pelvis, radiating to the vulva and obviously originating in the internal pudendal nerve.

In the last two instances, and in the event of associated sympathetic pain, posterior commissural myelotomy is recommended, provided the patient is in good general condition. It is generally admitted that this operation acts as a sympathetic operation on higher and more central pathways.

2. A second type of undoubted sympathetic pain may be described in relation to the malignant evolution of cervical lymph nodes secondary to carcinoma of the tongue, tonsils, etc. These patients often indicate with their hand the topography of the pain during the crises: one side of the head, the nape, temple, ear, eye, and teeth of the lower jaw. These crises are almost unbearable, especially at night. I have even witnessed in these circumstances a certain degree of enophthalmia and watering of the eye. As Leriche and Fontaine have shown in their book *La Chirurgie de la Douleur*, the dissection and pinching of the external carotid peripheral tunic in patients operated upon under local analgesia will awaken pain in the same area. This type of pain may also occur in the case of limited radionecrosis of the lower jaw after radium therapy.

Here again pain due to involvement of the skull base must be eliminated. It is generally out of the range of therapeutic action, although *x*-ray therapy may relieve it to some degree.

Pain sometimes will be produced by acute otitis in the course of evolutive cancer of the cavum. In such a case I have seen paracentesis of the drum bring relief.

Lastly, when continuous pain is localized to the trigeminal nerve and the cervical plexus, direct operations on these nerves should be preferred.

Besides these two syndromes there are others in which the influence of the sympathetic nerve is less obvious. For instance, brachial pain in the course of carcinoma of the breast is relieved in 50% of cases by routine infiltration of the cervico-dorsal chain. Oedema of the arm and hand is frequent. A phlebogram is not easily obtained in such cases. Nevertheless, when these symptoms seem to be produced by chronic phlebitis, infiltration is usually successful. Similarly, a patient had a cancerous node closely connected with the lower portion of the axillary artery, together with radial paralysis. Cervico-dorsal trunk infiltration resulted in the pain being relieved and the paralysis attenuated. This procedure, repeated every two months, was successful for a year and a half. In refractory cases I believe that a high posterior myelotomy, as advocated by Putnam, may give satisfactory results.

Intolerable pain in cancer of the stomach did not appear to be relieved by infiltration of the splanchnic nerve, except for a few hours. Pain in bladder and rectum in evolutive cancer of the cervix is not always abolished by section of the presacral nerve (Cotte, 1932) or by infiltration of the lower lumbar sympathetic trunk. Of three presacral sections one was a failure, one a three-weeks success, and in the other relief lasted one year. In the last case resection of both the fifth and fourth sympathetic ganglia of the lumbar trunk was performed simultaneously by transperitoneal approach.

I have noted that some accompanying symptoms may be relieved by infiltration of the cervical sympathetic trunk : (1) a few days' attenuation of dysphagia is obtained in upper pharynx carcinoma in 50% of the cases ; (2) dyspnoea in some laryngeal cancers is seen to disappear after infiltration of the middle cervical ganglion ; and (3) in the case of trismus due to inflammatory lesions associated with cancer infiltration of the upper cervical ganglion will cause it to yield noticeably.

Selecting the Sympathetic Operation

Most of the patients have already experienced drugs : they have got used to them, especially in the case of opium. A careful study should first be made of the actual characteristics of the pain in order to avoid misapplication of treatment. The general condition, cancerous extension, and the migratory nature of pain (as in diffuse cancerous osteosis) should be considered. The psychological condition of the patient must also be taken into account. At all events, infiltration of sympathetic trunks is an easy and harmless test. If successful, and the general condition is fairly good, these infiltrations may be repeated over a long period of time.

Should sympathetic operations be recommended in patients whose general condition is very good ? I feel less and less convinced that they should. In spite of two

satisfactory results, extending over two years, of lumbar sympathectomy in patients with slowly evolutive cancer of the cervix, I have witnessed recurrence of pain after three weeks and two months respectively. It seems that the stumps of sympathetic trunks that have undergone section soon get irritated by the progressive involvement of lymph nodes and thus bring about recurrence of pain; besides, infiltration on a higher segment may yet be successful, so that operation may well be deemed useless. I still perform it, however, under the following circumstances: (1) In the case of left colostomy for very extensive and painful pelvic cancer. Before opening the peritoneum I explore the left sympathetic trunk by subperitoneal approach, and when accessible I remove it. (2) When haemorrhages render operation in the neck necessary I remove the external carotid, together with a considerable portion of the upper thyroid, facial, and occipital arteries—the most sensitive arteries in this area. In addition, I resect the upper cervical sympathetic ganglion.

Summary

Lesions of the sympathetic ganglia and arterial walls are encountered in cancerous patients undergoing pain.

There are in the lumbar region and in the neck well-defined types of sympathetic pain. These are greatly relieved by cocaine infiltrations of the sympathetic trunks. This procedure, which is simple, should be preferred to operations on the sympathetic nerve, which are difficult and which often lead to recurrences.

I am grateful to Prof. J. F. Martin, pathologist, and Mr. Delaunay, medical photographer, for the photomicrographs reproduced on the photogravure plate.

BIBLIOGRAPHY

Bard, L. (1927). *Lyon chir.*, **24**, 241.
Binet, A. (1937). *Bull. Soc. Obstét. Gynéc., Paris*, **26**, 341.
Cotte, G. (1932). *Chirurgie du Sympathique pelvien en Gynécologie*. Masson, Paris.
Curtillet, E. (1937). *Rev. franç. Gynéc. Obstét.*, **32**, 306.
Dargent, M. (1944a). *Lyon chir.*, **39**, 452.
—— (1944b). *Bull. Mém. Acad. Chir.*, **70**, 409.
—— and Marion P. (1943). *Pr. méd.*, **51**, 107.
Ducuing, J. (1938). Ibid., **46**, 1225.
—— (1940). *Bull. Ass. franç. Cancer*, **29**, 36.
Leriche, R. (1922). *Lyon chir.*, **19**, 647.
—— (1925). *Soc. Chir. Lyon*, **22**, 701.
—— (1937). *La Chirurgie de la Douleur*. Masson et Cie, Paris.
—— (1941). *Acad. Chir.*, **67**, 542.
—— and Fontaine, R. (1926). *Pr. méd.*, **34**, 1194.
—— —— (1927). *J. Chir.*, **30**, 1.
—— —— (1929a). *Pr. méd.*, **37**, 903.
—— —— (1929b). *J. Chir.*, **34**, 281.
Martin, J. F., and Dargent, M. (1945). *Pr. méd.*, **71**, 131.
Putnam, T. J. (1934). *Arch. Neurol. Psychiat.*, **32**, 1189.

Many of the functions previously exercised by the Ministry of Health under the Food and Drugs Acts have been transferred to the Ministry of Food in consequence of an Order in Council entitled the Transfer of Functions (Food and Drugs) Order, 1948, made under the Ministers of the Crown (Transfer of Functions) Act, 1946. Broadly, the effect of the transfer is that the Ministry of Food is concerned with the composition, description, and inspection of foods, while the Ministry of Health continues to be concerned in measures for dealing with infected food or food poisoning. These changes affect only departmental functions. The duties of enforcement and execution placed by the Acts and regulations upon local authorities are not affected. The Ministry of Food becomes the department concerned with the Preservatives and the Condensed and Dried Milk Regulations and other matters relating to the composition and description of food; with the Meat and Imported Food Regulations and other matters relating to food inspection and food hygiene generally; and with the Milk and Dairies and Milk (Special Designations) Regulations so far as they concern dealers and distributors. The Ministry will also become responsible for approval of terms of appointment of public analysts. The Ministry of Health remains the department primarily concerned with drugs and with matters directly related to the protection of the public from infected food—for example, food poisoning and regulations relating to ice-cream, shell fish, and the stoppage of the sale of infected milk. All regulations under the Food and Drugs Act, 1938, which are at present made by the Minister of Health, will in future be made jointly by the Ministers of Food and Health. None of the changes involved in this transfer of functions affects the position in Scotland.

ASEPTIC NECROSIS OF PANCREAS DUE TO ARTERIAL THROMBOSIS IN MALIGNANT HYPERTENSION

BY

WALTER PAGEL, M.D.

AND

A. L. WOOLF, M.B., B.S.

(From the Central Middlesex County Hospital)

[WITH PHOTOGRAVURE PLATE]

The possibility of a vascular factor in the production of acute pancreatitis has long been suspected, yet no conclusive evidence has so far been adduced. Gerlei (1930) described two cases of embolic occlusion without any tissue damage. Two other cases with disseminated necroses were observed, but all were incidental findings due to multiple small emboli and were visible only under the microscope: none showed evidence of fat necrosis or haemorrhagic pancreatitis. Lynch (1940) mentioned a case of embolic infarction, the embolus originating in an atheromatous aortic patch. Here "massive haemorrhagic necrosis of the tail of the pancreas" is claimed, but no more exact description of the findings is given. By experimental injection of the pancreatic arteries of dogs with mercury pellets, Smyth (1940) produced anaemic infarcts localized to the infarcted areas in contrast with the spreading tendency of clinically observed acute haemorrhagic pancreatitis.

Of the older cases, those by Chiari (1900) and Rössle (1921) should be mentioned; in these arterial thrombosis was followed by anaemic infarction of considerable extent, but no appreciable fat necrosis or haemorrhagic pancreatitis was observed. Brentano's (1900) case, which is sometimes quoted in this connexion, is actually not concerned with primary vascular changes in the pancreas.

It is therefore still undecided whether multiple small or gross vascular changes and infarction of the pancreas can lead in themselves to acute pancreatitis, and a supplementation of the scarce material available appears to be imperative.

The following is a report of a case recently admitted to the Central Middlesex County Hospital, with the findings at necropsy.

Case Report

The patient, a builder aged 45, was admitted on Aug. 29, 1947, on account of a dull aching pain for two to three weeks in the epigastrium, radiating around the sides of the chest to the shoulder-blades and also over the front of the chest. He had had a similar attack of pain twelve months before, and bouts at intervals in the intervening periods. There was nausea but no vomiting.

Examination revealed several areas of petechiae on the skin, particularly around the shoulders and upper chest posteriorly. He was not apparently in severe pain, but had pain localized to the midline of the epigastrium. The abdomen was semi-rigid, and thus there was indefinite tenderness; the percussion note was tympanitic all over. The pulse was 100, and a regular apical systolic murmur was heard. The fundus oculi showed bilateral papilloedema (doubtful in the left eye) and haemorrhages, with exudates in the right eye. Blood count: white cells amounted to 18,400 per c.mm. (neutrophils 86%, lymphocytes 8%, monocytes 6%), with a marked shift to the left.

A clinical diagnosis of malignant hypertension with uraemia was made. The uraemia increased, ending in coma (blood urea, 275 mg. per 100 ml.), with evidence of pericarditis.

Necropsy.—The body was that of a thin man, with petechiae on shoulders, chest, and thighs. Brain: no changes. Uraemic pleurisy and pericarditis with subserous petechiae. Heart: left ventricular hypertrophy. No parietal or valvular thrombus

seen. Vessels: no thrombus in portal or splenic veins or splenic artery. Aorta: no changes. Peritoneum: about 1 oz. (28 ml.) of clear yellow fluid in peritoneal cavity (right paracolic gutter). Liver: no changes. Typical old and fresh haemorrhagic cholecystitic changes. Large bile ducts: apart from thickening and oedema of the walls, no appreciable changes. The pancreatic duct was neither thickened nor obstructed and appeared quite normal. Spleen: very small and firm, 65 g., 7.5 by 5 by 1 cm. Kidneys: right, 215 g., 12.75 by 5 by 3.5 cm.; left, 230 g., 12.75 by 6 by 3 cm.; cortex, 0.8 cm. thick. Both kidneys appeared swollen and showed the variegated subcapsular surface and appearances typical of "malignant hypertension." The pancreas appeared to be swollen and harder than normal. On the surface and cut surface about ten small anaemic infarcts up to 1.1 by 1.1 cm. could be seen throughout the organ, and in the centre a large area of confluent necrosis 3.2 by 1.2 cm. was present (Plate, Fig. 1). The areas of necrosis were sharply demarcated by narrow haemorrhagic margins. *There was no visible fat necrosis or anything in the nature of diffuse haemorrhagic pancreatitis.*

Histology.—The pancreas showed extensive but sharply demarcated areas of anaemic necrosis with incipient central liquefaction and narrow peripheral zones of haemorrhage (Fig. 2). In all sections of the pancreas examined, both within and outside the necrotic foci, the small arteries (about 0.2 cm.) showed extreme arteriolosclerotic changes, namely, intimal thickening and reduplication of the elastic laminae. Many of these arteries were occluded by thrombi, in some places completely and in others only partially, peripheral sedimentation of platelets and fibrin having occurred, leaving the centre of the lumen patent. There was no hyalinization or other evidence of tryptic digestion of the adventitia or media of the arteries, and no evidence of periarteritic changes. The kidneys showed extensive hyaline fibrinoid infiltration of the afferent vessels of the glomeruli, with tubular atrophy and scattered congestion and haemorrhage in the stroma.

Comment

Clinical Picture.—The underlying condition in the present case was "malignant hypertension" leading to uraemia. In this respect it resembles those observed by Chiari (1900), Rössle (1921), and Klemperer and Otani (1931), but in addition there were attacks of epigastric pain unrelated to meals and radiating to the back. The last attack, beginning three weeks before death, seems to be referable to the arterial changes followed by infarction in the pancreas. Neither the picture of the local condition nor the uraemic process overshadowing it had anything in common with acute haemorrhagic pancreatitis and fat necrosis.

Anatomical Findings.—"Vital reaction" in the margin of the infarcts (haemorrhages and leucocytic demarcation) excluded post-mortem changes. No evidence of periarteritis nodosa or of sources of embolism could be adduced, and in view of the incomplete occlusion of some of the arteries the clots were regarded as thrombi forming in small arteries about 0.2 cm. in diameter, with hypertensive changes. Blockage of many arteries of that size is obviously the cause of the widespread infarction, and it is unnecessary to follow Gerlei (1930) in discarding a vascular aetiology and grasping at a hypothetical pancreatic-duct obstruction from a congested ampulla of Vater. The intact condition of the adventitia and media contrasts with the hyalinization resulting from tryptic digestion and proceeding from without inwards found in pancreatitis (Rich and Duff, 1936). The changes in themselves are similar to those obtained by experimental embolism (Smyth, 1940).

We submit this report with the object of making clear the distinction between infarction of the pancreas and acute haemorrhagic pancreatitis.

Summary and Conclusions

A case is reported of aseptic necrosis (anaemic infarction), chiefly of the central portion of the pancreas, due to arterial thrombosis occurring in "malignant hypertension."

Neither the clinical nor the anatomical picture revealed any relationship to "acute haemorrhagic pancreatitis" and/or "pancreatic fat necrosis." Observations such as that reported cast doubt upon the "vascular factor" as the primary cause of acute pancreatitis.

We are indebted to Dr. J. S. Crowther for the clinical notes, to Mr. L. Spain for technical assistance, and to Mrs. B. Burnett for help with the photography.

REFERENCES

Brentano, A. (1900). *Arch. klin. Chir.*, **61**, 789.
Chiari, H. (1900). *Prag. med. Wschr.*, **25**, 157. Quoted by G. B. Gruber. In Henke and Lubarsch's *Handbuch der speziellen pathol. Anat. u. Histol.*, 1929, **2**, 305. Springer, Berlin.
Gerlei, F. (1930). *Virchows Arch.*, **276**, 148.
Klemperer, P., and Otani, S. (1931). *Arch. Path.*, **11**, 60.
Lynch, K. M. (1940). *Ann intern. Med.*, **14**, 628.
Rich, A. R., and Duff, G. L. (1936). *Bull. Johns Hopk. Hosp.*, **58**, 212.
Rössle, R. (1921). *Beitr. path. Anat.*, **69**, 181.
Smyth, C. J. (1940). *Arch. Path.*, **30**, 651.

"TEMPORAL ARTERITIS"

SOME ASPECTS OF SUBACUTE ARTERITIS IN LATER LIFE

BY

G. H. JENNINGS, M.D., M.R.C.P.

Senior Physician, Redhill County Hospital, Edgware

[WITH PHOTOGRAVURE PLATE]

With the present interest in the problems and diseases of old age more attention may well be paid to a complaint which is mainly found in people over 60. Severe protracted headaches and signs of inflammation of the temporal arteries often appear early and facilitate diagnosis, but from the earlier descriptions of the disease both in America (Horton and Magath, 1937) and in England (Jennings, 1938) it was clear that the term "temporal arteritis" was an inadequate title for the disease. Indeed, Gilmour (1941) described three probable cases of the condition which proved fatal but in which temporal arteritis was not seen.

Although inflammation of the temporal arteries has been the hallmark of nearly all the other 38 cases described, the whole aspect has been that of a prolonged general infection with widespread, if patchy, arterial involvement. In a case seen ten years ago there was not only evidence of inflammation of the temporal and occipital arteries but also bilateral retinal arteritis, left brachial arteritis, reduced pulses in the right foot, and some suggestive evidence of slight involvement of renal and mesenteric arteries. In this case (Jennings, 1938) the infection was certainly active for eight months, a duration now recognized as being not unusual.

Retinal arteritis has been observed in about half the cases; Kremer (1946) has shown a case, and in a series of seven cases in Birmingham (Cooke, Cloake, Govan, and Colbeck, 1945) six had not only general arterial involvement but also severe arteritis in the vessels to the optic nerves. Three of these six became quite blind. Gilmour's cases showed chief pathological changes in the aorta and the branches of its arch and in their branches. Cooke and his co-workers, who record three fatalities within two years of the onset of the illness, were twice able to make post-mortem examinations, and in the deeper vessels found involvement of the aorta and of the arteries of the heart, coeliac axis, mesentery, kidneys, limbs, and brain.

Arteritis of the limbs and of the brain gives accessible signs and symptoms, and from the former may result limb pains, muscle-wasting, reduced or absent pulses, and occasionally intermittent claudication. Brain manifestations of great severity—delirium, vertigo, coma, and

cerebral vomiting—have been described by Cook *et al.* in a case in which the small arteries of the brain were inflamed and thrombosed. Kremer's case had a minor left-sided spastic weakness, presumably due to right middle cerebral arteritis, while two of Gilmour's cases had gross cerebral infarction as a result of thrombosis of inflamed and narrowed internal carotid arteries.

Although the cause is unknown the infective nature of this complaint is often emphasized by the onset and course of the illness. Gilmour's three cases had an "influenzal" onset respectively 5, 9, and 26 months before death, and such features of general infection as fever, malaise, anorexia, loss of weight, and raised sedimentation rate are frequent and persistent findings. Early "rheumatic" symptoms and joint pains, with or without swellings, are a not unusual feature (Jennings, 1938; Brown and Hampson, 1944; Cooke *et al.*, 1945); and Case 4, below, showed prolonged activity and a late arthralgia.

Four recent cases of "temporal arteritis" are recorded to illustrate further its variable duration and distribution. One seen in 1942, during a time of bed shortage, was adequately treated as an out-patient; another ran a comparatively rapid fatal course. The predominance of female sufferers (three to one) was in accord with all obtainable previous reports (29 women and 15 men), and so, too, was the consistent negative of the Wassermann tests.

Case 1

The patient, a man aged 69, was a thin, rather arteriosclerotic subject with previously good health. He had had severe bilateral temporal headaches for about three weeks and showed thickening and tenderness of both temporal arteries, with reduced pulsation. There were a few pink nodular areas on the branches of the artery on the right side, and a week later similar nodules were observed on the left side, the right side being then in subsidence. Two weeks later he developed racking pains at the back of the neck and head, and there was tenderness along the course of the occipital arteries, though these could not be felt. There was great pain on turning the head. The temporal arteries were at this time thick, slightly tender, and pulseless. Although severe the pains were readily controlled in the day by an aspirin-and-phenacetin mixture, and at night small doses of codeine were sometimes also given to ensure sleep. There seemed to be little constitutional upset and there was no visual disturbance or evidence of arterial involvement elsewhere. Other systems showed no marked abnormality for age, though the blood pressure was 170/100. The Wassermann reaction was negative.

At the end of four months the condition appeared to have subsided, and after a gradual diminution the pains had gone. The branches of the temporal arteries had at this stage contracted so as to be almost entirely impalpable. They remained pulseless.

Case 2

A woman aged 67 was admitted on Nov. 19, 1946. She had been well apart from thyrotoxicosis with partial thyroidectomy three years before her admission. She complained of severe pains in the head for three months, starting on the right side and then passing to the left. Shortly afterwards severe occipital pains developed and she became conscious of "bumps" in all these painful scalp areas. There was marked general loss of hair during these three months. For three weeks before admission there had been notable general symptoms (fever, anorexia, nausea, and occasional vomiting) and severe general head pains, with aching in the eyes and mandibles.

Examination on admission showed a moderately obese old lady with evident thinning of hair on the scalp and eyebrows. There was no evident myxoedema or anaemia. The temperature was 100° F. (37.8° C.) and pulse 98. The temporal arteries and their branches were pulseless tender cords. There was a small pink oedematous area near the end of the frontal branch of the right temporal artery and some pinkness and induration for about 1 in. (2.5 cm.) in the middle of the left frontal branch. Pain and tenderness were less pronounced in the occipital region and the occipital arteries could not be felt. Examination of retinae (Mr. R. C. Williams) revealed some arteriosclerosis, but nothing abnormal for age. The heart was not enlarged. There was slight slurring of first sound but no other abnormality. The blood pressure was 150/80. Electrocardiograms showed slight left axis deviation. White blood cells numbered 6,000 (polymorphs 57%, lymphocytes 30%, monocytes 11%, eosinophils 2%). Blood Wassermann reaction was negative; blood cholesterol 126 mg. per 100 ml. An aspirin and phenacetin mixture, and occasional kaolin poultices to the forehead, gave effective symptomatic relief.

The two pink areas of artery were removed on the fourth day, and though the pain was already less by then it subsequently diminished rapidly. Temperature became normal by the end of one week in hospital and so remained, but on Dec. 5 a small raised red area appeared on the left mastoid region and settled in a few days. By then the temporal arteries were firmly thrombosed and free from tenderness. She was discharged on Dec. 21. Her later history was that she felt weak after discharge from hospital and in the first two months spent much time in bed. There was much giddiness at the time of writing (July 21, 1947) and she was compelled to lead a quiet life.

Report on Arterial Sections (Dr. H. C. Moore).—(1) *The adventitia* is thickened, with a pronounced cellular reaction at the adventitial-medial junction (Fig. A). There are lymphocytes, histiocytes, and epithelioid cells, and a marked eosinophil leucocyte response. (2) *The media* is thinned by loss of muscle and partial replacement with collagen. Cellular response is similar to that in the adventitia. There is an apparent increase in elastic tissue, but perhaps this is due to condensation of the normal elastica in a thinned media. No giant cells seen. (3) *The intima* is hypertrophied and shows collagenous and mucoid change with some fibroblastic reaction. The lumen of the other branch is partially occluded by a recent thrombus (Fig. A).

FIG. A.—Case 2. Thickened adventitia with marked cellular reaction at adventitial-medial junction. Thinned media and condensed elastica. Intimal hypertrophy and recent central thrombosis.

The other two cases showed a more severe and probably more widespread type of disease. In Case 3 the pituitary gland underwent partial necrosis, presumably as a result of local arteritis, and rapid wasting and death ensued. A severe anaemia also developed rapidly at the height of the illness. In this case, in which severe headaches preceded the signs of temporal arteritis by ten weeks, the limited cranial post-mortem examination was sufficient also to show meningeal arteritis and a thickened dura mater as possible causes of this symptom. There was also clinical evidence of involvement of the blood supply to the left auditory nerve.

Case 4, after early signs and symptoms of temporal arteritis, showed a late involvement of the arm arteries and prolonged activity of the condition as revealed by "rheumatic" joint symptoms and a much raised sedimentation rate eleven months from the onset. Such persistent activity is a feature of this condition and for many months makes advisable a guarded prognosis regarding the eventual fate of each patient.

Case 3

A woman aged 73 was admitted on March 16, 1945, with severe frontal and occipital headaches of one week's duration. During the same period she had noticed deafness and tinnitus in the left ear. The headaches were fairly continuous and were worse in the recumbent than in the upright position; they were also made worse by talking and by exertion. She had vomited twice just before admission.

On admission a thin and very arteriosclerotic old woman was seen; she was alert and intelligent, but evidently troubled by severe headache. Temperature was 100° F. (37.8° C.) at first, and subsequently an intermittent low-grade fever; pulse 88; blood pressure 180/100. The heart was not enlarged and was normal apart from marked accentuation of aortic second sound. There was no abnormality in the central nervous system.

Headache was somewhat relieved by phenobarbitone, aspirin, and phenacetin at first, but was very severe by March 28, when she was mentally muddled and seemingly neurotic. Blood pressure was 126/72. Increasing anaemia was evident. Headache was particularly severe on April 3 and 7, but rather better between these days. She had increasing radiating occipital pains after April 7, often of such severity as to cause her to rock to and fro in bed and require heroin tablets for relief; there was some stiffness of the neck. On April 19 she had severe left temporal pain, and the left temporal artery branches were found to be pink and tender. Similar but less marked signs were found in the right temporal artery. Next day she had pain in both temporal regions and marked jaw stiffness; neck still stiff. Throughout the following week both temporal arteries remained pink and tender and there was a rapid decline in the patient's general condition with marked wasting of the body but no visual upset. The anterior frontal branch of the left temporal artery thrombosed on April 25 and that on the right side on April 30; the posterior branches thrombosed on May 6. There was a decrease in the pinkness of the arteries and in the headaches as the temporal pulses faded, but on May 6 the patient became unconscious; she died on May 8.

Investigation Results.—Radiographs of skull, cervical spine, and chest on April 4 were all normal. On March 17 the cerebrospinal fluid showed: protein 20 mg. per 100 ml.; Pandy's test, trace; cells, 2. On March 23 the blood Wassermann reaction was negative; urea 38 mg. per 100 ml. The urine was clear on April 26. A blood count on March 21 showed: red cells, 4,020,000; Hb, 62%; colour index, 0.78. On April 18 the Hb was 52%.

Post-mortem Examination (limited to head)—Macroscopic (Dr. J. Hamilton Paterson).—"Temporal arteries very thick and very fine capillary lumen throughout. Accompanying veins normal. Middle meningeal arteries show changes similar to temporals. Circle of Willis only shows gross patchy atheroma. Brain substance normal apart from surface oedema. Dura mater thickened. Pituitary gland appears necrotic."

Report on Arterial Sections (Dr. H. C. Moore).—First section (Plate, Fig. 1): Early changes of temporal arteritis. (1) *The adventitia* is thickened and shows increased vascularity at the adventitial-medial junction with lymphocytic and histiocytic infiltration. No eosinophilic or giant-cell reaction. Many vasa vasorum thrombosed. (2) *The media* shows patchy thinning (not shown, Fig. 1) and slight replacement of muscle with collagen, but there is no cellular reaction. The elastic tissue is normal in amount, but in some areas shows fragmentation. (3) *The intima* shows a hypertrophy consisting mainly of reticulated collagen with a secondary layer of fibroblastic reaction.

Second section: (1) *The adventitia* is thickened and shows a focal cellular reaction of lymphocytes and histiocytes. This inflammatory process is spreading into the media. (2) *The media* is thinned and some muscle is replaced by collagen. The cellular exudate spreading from the adventitia shows occasional giant cells, lymphocytes, and histiocytes, with a slight eosinophil leucocyte reaction. The internal elastic lamina shows some reduplication and fragmentation in places; elsewhere it is absent. (3) *The intima* shows a very gross collagenous hypertrophy with secondary layers of fibroblastic reaction.

Case 4

A woman aged 73 had for long been subject to attacks of migraine and to post-menopausal arthritis in the knees. She was admitted on Jan. 8, 1947, with temporal-region pain, "not like headache," of between two and three weeks' duration. The sides of the head were painful and tender so that her glasses hurt her. A few days from the onset of the pain her husband noted discoloured swellings below the hairline, "as though she had knocked her forehead." Two weeks before admission she was shaken in a fall, and though her head was not injured she subsequently felt increased throbbing pain in the temporal and occipital regions.

Examination showed a palish, well-developed old lady with slight bagginess below the eyes and evident severe head pain. Temperature was 99.2° F. (37.3° C.) and pulse 80. The temporal arteries on the forehead were both just palpable as pulseless cords, the left showing slight tenderness, with a small pink area on its posterior branch. There was no evident active arteritis elsewhere in any palpable artery. The disks and central nervous system were normal, as was the heart. Blood pressure was 120/70. The knees showed crepitus.

Severe throbbing frontal and retro-ocular pains continued in long bouts with only temporary relief from aspirin and phenacetin, and at times from heroin in full doses. Potassium iodide was later tried without much effect. Temperature rose to 99.5–100° F. (37.5–37.8° C.) in the evenings in the first two weeks and the headaches were then at their severest. Arterial resection was made on Jan. 26, with transient relief. Sweating was at times quite marked, and all through February there were recurrent rises of temperature to 99° F. (37.2° C.), but the headaches were much less severe after the middle of that month. On March 4, without any marked symptoms, she was observed to show no brachial or radial pulses in the right arm, while in the left arm with normal pulses the blood pressure was 100/60. She seemed well, though still weak, at discharge on March 22.

On April 23 she was feeling very well and getting about comfortably, and had had no headache since her discharge. The right brachial pulse was not felt and the left was only just palpable. Left radial pulse was larger than right. Blood pressure in left arm was 125/95 and in right 98/80. The temporal artery branches were neither palpable nor tender. There was no general arteriosclerosis. The E.S.R. (Westergren) was 129 mm. On July 24 further good progress was recorded apart from severe intermittent rheumatic pains and stiffness in knees and shoulders in damp weather. There were no headaches. She showed no sign of active rheumatism; there was crepitus in the knees. The main temporal arteries both had good pulses, but none of the branches were felt. No tenderness was present. All arm pulses had now increased, but those on the left were still fuller than on the right. Foot pulses were all normal. Blood pressure in the left arm was 140/80 and in the right arm 110/85. The E.S.R. was 110 mm. On Nov. 13 she showed marked limitation of shoulder movement on both sides following severe rheumatism in August. Radiographs revealed pronounced osteoarthritis in the right acromio-clavicular joint—nothing else. The right arm and wrist pulses were still reduced, but there had been a rise in blood pressure in the left arm to 184/98 and in the right to 160/100. Urine, n.a.d. Foot pulses were normal; no further headaches; no pulses in temporal branches. E.S.R. 68 mm.

Investigation Results.—E.S.R. (Westergren) on Jan. 17, 120 mm., subsequent readings throughout stay in hospital were at this level. A blood count on Jan. 9 showed: Hb, 80%; red cells, 4,080,000; colour index, 1; white cells, 7,300 (polymorphs 68%, lymphocytes 30%, eosinophils 1%, monocytes 1%). On Jan. 17 the blood Wassermann reaction was negative. On Jan. 13 the cerebrospinal fluid was clear and colourless;

pressure 65 mm.; total protein, 20 mg. per 100 ml.; Pandy's test negative; lymphocytes, 3 per c.mm.

Section of a Frontal Branch of Right Temporal Artery (Dr. H. C. Moore).—*The media* shows the greatest changes and an increase of collagen has replaced much of the muscle (Fig. B). It is uniformly infiltrated with lymphocytes, histiocytes, and epithelioid cells, and shows a fibroblastic and giant-cell reaction (Plate, Fig. 2). There is one area of medial necrosis. The elastic tissue is absent. *The adventitia* is not thickened, and in one place shows a small area of inflammatory reaction similar to and continuous with the medial reaction. The vasa vasorum are normal. *The intima* is proliferated and the lumen of the artery almost occluded (Fig. B). The proliferating tissue is mucoid and collagenous, contains some lymphocytes and histiocytes, and is vascularized.

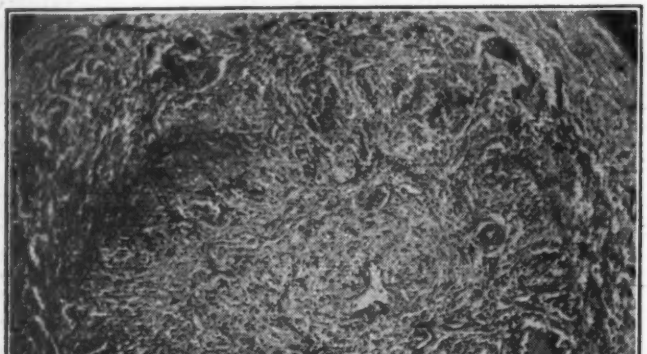


FIG. B.—Case 4. Media infiltrated with many cells and largely replaced by collagen. One area of necrosis (upper left). Lumen almost occluded by intimal proliferation. Adventitia not thickened.

Comment on the Pathology of the Temporal Arteries

Summary (Dr. H. C. Moore).—"Study of these sections suggests that the changes start as an 'inflammatory reaction' at the adventitial-medial junction, which results in partial destruction and replacement by collagen of the media and leads to fibrous thickening of the adventitia. Intimal hypertrophy follows as a secondary phenomenon. The cellular reaction is constantly lymphocytic and histiocytic; in most sections giant cells were present, and in two cases an eosinophil response was noted. Medial necrosis appears to be secondary to the inflammatory reaction; and in no section was it evident that its elastic tissue had proliferated in the manner described by the Birmingham investigators."

Our findings thus tend to harmonize those of Gilmour, who found the media chiefly involved, with those of Cooke *et al.*, who described an inflammation originating in the adventitia. With their marked medial involvement our sections particularly resemble those examined by Gilmour, but since one of the present cases showed no giant cells we do not consider that author's name for the condition, "giant-cell arteritis," an ideal title. The eosinophil response, noted in two of our cases, has been previously found in temporal arteritis (Bowers, 1940; Hoyt *et al.*, 1941; Scott and Maxwell, 1941), but we did not find the leucocytic infiltration of all the vessel coats mentioned by Gordon and Thurber (1946), and we consider absence of marked intimal cellular infiltration as a characteristic feature of the complaint.

The condition has features in common with both polyarteritis nodosa and thrombo-angiitis obliterans. Some of the chief points of distinction between the three complaints are included in the accompanying Table.

Discussion

The four cases illustrate many of the cardinal features of "temporal arteritis": (1) the occurrence of the condition in old people, more particularly in old women; (2) the extreme persistence and severity of its headaches; (3) the protracted nature of the complaint, only the fatal case being ill for less than four months, and one case being still unwell eleven months after the onset; (4) the general and widespread nature of the arteritis revealed even by the limited examinations open to us—temporal, posterior auricular, occipital, meningeal, pituitary, and brachial arteries all being involved in one case or another; (5) a variable intensity of the infection, with a general tendency to a severe fluctuant illness, and with direct fatalities in a small minority; and (6) a course and a pathology which suggest that the arteries are involved in a low-grade inflammation which is not syphilitic and which differs to some extent from other known forms of arteritis.

Table of Comparison of Forms of Arteritis

	Thrombo-angiitis Obliterans	Polyarteritis Nodosa	Temporal Arteritis
Clinical picture	Occasional early thrombophlebitis. Arterial thrombosis in limbs with intermittent claudication, loss of pulses, trophic changes, and gangrene in extremities. Loss of weight, but little fever or general upset	Very varied. Fever tachycardia sweating, loss of weight. Possible infarction of almost any viscus. Polyneuritis; muscular and joint pains. Anaemia and often pronounced leucocytosis	Low fever, sweating, malaise, anaemia, and loss of weight often present. Muscle and joint pains; joint stiffness and swelling. Neck and jaw stiffness; painful mastication. Tender and inflamed temporal arteries
Headache	Not marked	Not marked	Very severe and protracted
Sex and age incidence	Almost entirely in young or middle-aged men	Four times more frequent in men; usually in young adults	Twice as common in females; nearly always over 60
Type and site of lesion	Chiefly in limb arteries; retinal arteritis rare. No aneurysm formation	Nodular lesions in medium-sized and small muscular arteries (often visceral). Retinal arteritis rare. Aneurysm formation	Patchy arteritis, particularly in aorta and arteries to head and limbs. Reported in visceral arteries. 50% incidence of retinal arteritis. No aneurysm formation
Arterial reaction	1. Acute stage: patchy lesions; all coats invaded by polymorphs. 2. Chronic stage: fibrosis in and around vessels; organization and recanalization of thrombi; proliferative endarteritis	1. Acute stage: (*a*) Severe medial necrosis with fibrinous exudate. (*b*) Infiltration of all coats with leucocytes, histiocytes, and lymphocytes. Liability to aneurysm and rupture. 2. Chronic stage: Granulation tissue and later fibrosis in all coats	1. Inflammation at adventitial-medial junction. Cellular infiltration of both coats, chiefly with lymphocytes and histiocytes. Medial necrosis and giant-cell formation. 2. Granulation tissue in both outer coats; secondary collagenous hypertrophy of intima
Periarterial reaction	Fibrotic matting together of affected arteries and their companion veins in later stages	Cellular exudate in acute phase	Increased collagen deposition in the periarterial connective tissue
Thromboses	Present	Present	Present in smaller arteries
Venous involvement	Phlebitis and periphlebitis both present	Phlebitis in veins adjacent to inflamed arteries	Absent
Progress of Disease	Tends to cause loss of limbs	Usually fatal within a year (emaciation, haemorrhage, infarction of heart or kidneys, etc.)	Usual slow recovery with tendency to relapse. Occasionally fatal.

The absence of retinal arteritis in our group is unusual, for this has been recorded in about half the cases so far reported.

The C.S.F. examination twice showed no definite increase in protein such as was found thrice by Cooke and his co-workers (1945). Similar negative findings have been recorded in the past (Horton and Magath, 1937; Hoyt, Perera, and Kauvar, 1941).

The three cases examined all showed microscopical evidence of inflammation, and although one had thrombosed vasa vasorum there was no suggestion that the condition could just be due, as was suggested by Horton and Magath, to spontaneous thrombosis of these tiny vessels in senile arteries. Quite apart from the clinical evidence of infection and from the histological evidence of the arterial inflammatory reactions the patients were not senile, and in two of them there was neither marked hyperpiesis nor marked arteriosclerosis. Possibly the arteries of old age are less resistant to a virus, and this might account for the age incidence of the infection, but the condition is not a simple outcome of marked arterial degeneration.

Treatment.—The infective agent being unknown, no specific treatment can be given. Nor does it appear to be related to other local or general infections that can be eradicated. A superficial resemblance to rheumatism and to syphilitic arteritis has led to the use of salicylates and iodides, but it cannot be said that either of these has a proved value. Penicillin has not yet been used.* The main treatment is palliative; an aspirin-and-phenacetin combination will in all but the most severe cases give hours of relief. The addition of heroin or codeine will be required in the more severe cases to give sleep at night. Removal of a part of an inflamed temporal artery has been found to diminish the headache in some cases, but as this was done in the stage of subsidence in two of our cases it is difficult from them to assess its therapeutic value. Certainly the pain immediately lessened in both, but in one of them it returned in a modified form after a short interval. A similar effect from resection of a piece of inflamed artery is recorded by Shannon and Solomon (1945), while Dantes (1946) found his case quite unaffected by the procedure. Where intracranial arteries are also involved, as in Case 3, little relief can be expected from such a measure. Nicotinic acid, tried in the Birmingham cases with possible benefit, was not used in our last two cases, as these patients were not willing to be long without their aspirin-and-phenacetin mixture.

Conclusions and Summary

Temporal arteritis is usually, at least, part of a fairly generalized arteritis in old people.

This condition is probably more frequent than is suggested by the 44 or so cases hitherto presented in the literature.

This form of arteritis only rarely occurs without declaring its nature by temporal-artery inflammation, but in all suspected cases other palpable pulses should be observed for changes.

The main cause for suspecting the illness is a protracted severe headache associated with some general malaise in old people, and particularly in women.

In such subjects the tendency to diagnose a functional cause of the pain should be firmly resisted, and a careful watch should be kept on the temporal arteries.

Adequate doses of the coal-tar analgesics give considerable relief. The condition, though lasting many months in most cases, tends towards recovery in the majority. By this fact and by the nature of the vascular reaction to the infection some distinction can be made between it and polyarteritis nodosa and thrombo-angiitis obliterans.

The cause of the infection remains unknown.

Four recent cases of temporal arteritis are recorded and the condition compared with other forms of arteritis.

I am greatly indebted to Dr. H. C. Moore, who has made the detailed histological reports on the arterial sections, and also to Dr. J. L. Hamilton Paterson for the interest he has taken in this subject and for the help he has given me in its investigation. The photographs reproduced here and on the special plate were taken by Miss M. H. Shaw.

REFERENCES

Bowers, J. M. (1940). *Arch. intern. Med.*, **66**, 384.
Brown, J. W., and Hampson, F. (1944). *Brit. Heart J.*, **6**, 154.
Cooke, W. T., Cloake, P. C. P., Govan, A. D. T., and Colbeck, J. C. (1945). *Quart. J. Med.*, **15**, 47.
Dantes, D. A. (1946). *J. Amer. med. Ass.*, **131**, 1265.
Gilmour, J. R. (1941). *J. Path. Bact.*, **53**, 263.
Gordon, L. Z., and Thurber, D. C. (1946). *Arch. Path.*, **42**, 402.
Horton, B. T., and Magath, T. B. (1937). *Proc. Mayo Clin.*, **12**, 548.
Hoyt, L. H., Perera, G. A., and Kauvar, A. J. (1941). *New Engl. J. Med.*, **225**, 283.
Jennings, G. H. (1938). *Lancet*, **1**, 424.
Kremer, M. (1946). *Proc. roy. Soc. Med.*, **40**, 84.
Scott, T., and Maxwell, E. S. (1941). *New int. Clin.*, **2**, 220.
Shannon, E. W., and Solomon, J. (1945). *J. Amer. med. Ass.*, **127**, 647.

*Since this was written a failure with penicillin treatment has been recorded by K. Robertson, *British Medical Journal*, 1947, **2**, 168.

THREE CASES OF SYNOVIOMA

BY

V. C. J. HARRIS, M.B., F.R.C.S.Ed.

Honorary Surgeon, West Cumberland Infirmary, Whitehaven

[WITH PHOTOGRAVURE PLATE]

Considerable interest has recently been shown in atypical mesoblastic tumours arising in connexion with joints, bursae, and fascial planes, occurring most often in the lower limbs. The following are three such cases which at present are mainly interesting from the pathological point of view but are here reported from the clinical standpoint.

Case 1

The patient, a married woman aged 61, was first seen in November, 1946. She gave a history of "rheumatism" in many joints for some years and a pain for the past eight months in the left ankle. There was a swelling about the size of a plum on each side of the tendo Achillis posterior to the ankle-joint. This swelling was firm and tense, and was at first thought to contain fluid. Aspiration was attempted, and a very small quantity of blood-stained fluid was recovered. The patient was admitted to hospital in January, 1947, and the swelling was exposed through an incision on the lateral side of the tendo Achillis. It was a firm mass, dumb-bell in shape, about the size of a tangerine orange, in the situation of the bursa. It was apparently encapsulated, and was enucleated with some difficulty.

FIG. A.—Case 1. Leg before amputation.

FIG. B.—Case 1. Tumour of ankle after amputation.

A preliminary pathological report suggested that it was epiblastic in origin, but after further examination it was considered to be a mesoblastoma, probably synovioma. Radiography of the chest was negative for any secondaries, and that of the ankle negative for bone involvement; there were no palpable enlarged glands. On account of this pathological report operation was decided upon, and in March, 1947, amputation was performed at the junction of the middle and lower thirds of the thigh. The pathological report of the amputated specimen stated: "The specimen is a mesoblastic tumour—i.e., a synovioma—not resembling the original specimen, which is more fibroblastic than endothelial, with little haemosiderosis. It is involving the ankle-joint and tip of the astragalus." (Figs. A and B.)

Case 2

The patient, a married man aged 33, was first seen in March, 1947. He gave a history of a fall on the left leg eight weeks before which was not at the time followed by any symptoms. He stated that one week previously he had noticed a swelling in the left calf, and he walked with a slight limp. There was found to be a tense somewhat fusiform swelling in the left calf muscles. *X*-ray examination of the leg was negative for any lesion of the bone. The swelling was at first thought to be inflammatory in origin, but a biopsy was performed at the end of April. The pathological report on this was: "Myxosarcoma. If the leg is amputated please send for dissection to see where it is arising." He had a trace of sugar in the urine, but this cleared up. A glucose-tolerance test showed that the glycosuria was renal in origin. A radiograph of the chest was negative, and there were no palpable glands.

At the beginning of May amputation was performed at the junction of the middle and lower thirds of the thigh. The report of the amputated specimen was: "A mesoblastic tumour with cells of different type. Some are endothelial in appearance while others are fibrosarcomatous. This appearance conforms to the characteristics of a synovioma." (Plate, Fig. 1.)

Case 3

The patient, a married man aged 37, was first seen in April, 1947. He gave a history of several months' swelling in the adductor muscles of the right thigh; he also complained of some pain in the back. The swelling, which was hard and tense, was situated high up on the anterior internal aspect of the right thigh. Abduction of the leg was limited and the mass was fixed in the adductor group. A radiograph of the thigh was negative for bone involvement, and radiographs of the spine and lungs were also negative. There were no palpable glands. Biopsy was performed in May, and the pathological report on this was: "The specimen is most unusual, and is undoubtedly malignant. It is an undifferentiated reticulosarcoma, and may have arisen from a fascial plane. Further report will follow." After consultation with Mr. Thurgar, the consultant radiotherapist, it was decided that in view of the nature of the tumour and of its situation it would be best treated by a combination of surgery and radiotherapy, and in order to achieve continuity in this the patient was transferred to the Royal Victoria Infirmary, Newcastle-upon-Tyne.

At first it was thought that it would be necessary to do a hind-quarter operation, but it was finally decided that it would be possible to get above the mass by disarticulation at the hip-joint, and this was performed by Mr. McIvor. The pathological report on the amputated specimen was: "The specimen is mesoblastic tumour largely composed of undifferentiated mesenchyme cells with no tendency to haemosiderin pigmentation. It is very haemorrhagic, anaplastic, and has a few areas resembling endothelial cells. It is developing in the adductor group of muscles and is best classified as a synovioma." (Plate, Fig. 2.)

Clinically, from the point of view both of treatment and of prognosis, the above notes are necessarily at the moment incomplete. So far there have been no signs of recurrence. It is particularly interesting that three such cases should have occurred in a relatively small community in so short a time.

It is of course too early to assess the ultimate prognosis of these cases, but it may be stated that, up to date, Cases 1 and 2 are fit and well, both having put on weight with no sign of recurrence, local or otherwise. Case 3 died in November, 1947, the cause of death being multiple generalized recurrences in the lungs and abdominal glands. Unfortunately it was impossible to get permission to do a necropsy, so that the exact nature of these cannot be described.

In addition to Mr. Thurgar and Mr. McIvor, mentioned in the text, my thanks are due to Dr. Faulds, Carlisle, for his most helpful interest and discussions on the pathology of the above cases.

The photographs were taken by the author.

BALANTIDIAL DYSENTERY

REPORT OF A FATAL CASE IN ASSAM

BY

A. A. MILLER, M.D.
Late Lieutenant-Colonel, R.A.M.C.

AND

C. R. PECK, M.B.
Late Lieutenant-Colonel, I.A.M.C.

[WITH PHOTOGRAVURE PLATE]

This form of dysentery is distinctly rare, and has been studied much less than the commoner dysenteries. Cases have been reported from temperate and tropical climates: they have been found in Asia, Africa, Europe, and America. The balantidium commonly found in pigs is regarded as the ciliate responsible for human infections.

Wenyon (1926) cited Malmsten as having in 1857 discovered this parasite in two patients suffering from dysentery, and Walker as having stated in 1913 that only 137 cases had been recorded in the 56 years following Malmsten's discovery, and of these 57 had been reported from the Philippines. Strong (1942) states that Weston, working among prisoners in Manila, found ciliated parasites three times in 4,000 routine examinations of dysentery stools, that Anderson in the Andaman Islands discovered them five times in 920 dysentery stools, and that Young reported seven cases among 142 mental hospital cases in South Carolina.

Mortality figures vary considerably. Strong (1942) gives 29% in 111 Philippine cases, and Walker, cited by Wenyon (1926), gives 7% in 57 Philippine cases and points out that of 40 necropsies recorded in the literature ulceration of the large intestine was present in 36.

Very few cases have been recorded in India. Das Gupta (1944) cited Sinton as having recorded the first case in 1923, and Hermitte, Sen Gupta, and Biswas as having reported balantidial infection as common in the tea gardens in Cachar, Assam, in 1926. Acton and Knowles (1928) state that during many years of work in India they had not encountered the human infection except in one isolated case. They also mention a fatal case which occurred in the Medical College Hospital, Calcutta, in 1926 (Major Shanks, I.M.S.). Das Gupta (1944) states that "about half a dozen cases of balantidiosis, including a fatal infection, have been observed in Calcutta." Claireaux (1945, unpublished observations), working among West African soldiers in India, found balantidia three times in 2,403 routine examinations of stools.

We present this report mainly because of the unusual occurrence of fatal balantidial dysentery in this part of India, and also to point out the difficulties which may be

met with in diagnosis. The following case was discovered in the course of routine histological examinations in a military laboratory in Shillong, where large numbers of specimens were sent from units east of the Brahmaputra. Perusal of the laboratory records for a period of almost three years, in which time approximately 260 pieces of intestines had been examined, revealed no other instance of human balantidial ulceration.

Case Report

An Indian sepoy aged 30 was admitted to a military hospital in Assam on Oct. 21, 1944, with a two-day history of diarrhoea, with blood and mucus. On an average there were five or six motions a day. No previous history of dysentery or intestinal infection could be obtained. The patient's general condition was poor. He had slight pyrexia, and was markedly dehydrated. On examination he was tender over the caecum and pelvic colon. Microscopical examination of the faeces showed an indefinite exudate in which no entamoebae, balantidia, cysts, or ova were seen. Bacteriological cultures failed to produce pathogenic organisms.

On Oct. 22 his condition was worse. The diarrhoea was more pronounced, his bowels moving six to seven times in the day. Again the stools were negative for parasites and pathogenic bacteria. The remainder of the history is one of rapid deterioration, ending fatally on Oct. 24—that is, three days after admission to hospital.

Necropsy.—This was carried out seven hours after death. The significant findings were as follows :—Small intestine : areas of congestion were seen in the terminal ileum. Large intestine : a few ulcers covered with greenish sloughs were found in the caecum and ascending colon ; a large collar of ulceration covered with green tenacious sloughs was seen extending over the mucosa of the pelvic colon for 2 to 3 in. (5 to 7.5 cm.). The other organs showed no gross abnormalities.

Histology—Pelvic Colon.—Sections revealed a large ulcer with overhanging margins penetrating well into the submucous layer but short of the circular muscle layer ; at each side it burrowed for some distance into the submucosa ; the walls and floor were lined by structureless pink-staining hyaline material in which cellular remains and nuclear fragments could be seen. The mucous and submucous layers adjacent to the ulcer and for a considerable distance from the actual margins showed pronounced hyperaemia and oedema and were infiltrated with inflammatory cells : these were mainly lymphocytes and polymorphs, with a proportion of plasma cells and histiocytes. The muscle fibres beneath the floor of the ulcer showed loss of structure and were infiltrated with round cells and polymorphs. The subserous coat was also hyperaemic and was infiltrated with exudative cells. Moderate numbers of parasites were found scattered haphazard throughout the walls and floor of the ulcer and also in the subjacent mucous and submucous coats. They were large, round or oval in shape, and on an average measured 54.4μ by 37.3μ. Many had ciliated membranes and funnel-shaped depressions at the anterior poles. The cytoplasm was granular and contained ingested red blood cells and showed prominent macronuclei and one or two large vacuoles. These parasites were found single and in small clumps in the tissue spaces of the submucous coat (see Photogravure Plate) and lying inside and between the mucous glands. Small numbers of degenerate forms staining deep purple or pink were seen among the hyaline acidophile debris in the floor of the ulcer. These parasites had the typical morphology of *Balantidium coli.*

Commentary

This was a case of an acute illness, alleged to be of five days' duration, in which the presenting features were pyrexia, abdominal pain, diarrhoea, and dehydration. Repeated microscopical and cultural examinations of the faeces failed to reveal the cause of the diarrhoea. One of us (C.R.P.) who was responsible for these examinations considered it unlikely that parasites so large as balantidia could have been missed.

In the absence of laboratory findings a provisional diagnosis of amoebic dysentery was made. These two forms of dysentery may be similar in their clinical and post-mortem findings. In this case the gross anatomical appearances of the pelvic colon and the histological features of the ulceration were those often found in amoebic dysentery. The discovery of the balantidia, however, suggested an alternative diagnosis.

Summary

Fatal balantidial dysentery is regarded as distinctly uncommon in India.

The clinical, post-mortem, and histological features of a case in an Indian sepoy have been described.

We are indebted to Sergeant D. Canwell, R.A.M.C., for technical assistance and to Professor R. J. Pulvertaft for the photomicrographs.

ADDENDUM.—Since this article was completed Shun-Shin (1947) has reported ten cases of balantidial dysentery, one of which was fatal. He emphasizes the fact that in balantidial dysentery the clinical and pathological features may closely resemble those of amoebic dysentery.

REFERENCES

Acton, H. W., and Knowles, R. (1928). *Dysenteries of India*, p. 19. Calcutta.
Das Gupta, B. M. (1944). In Knowles's *Introduction to Medical Protozoology*, p. 201. Calcutta.
Shun-Shin, M. (1947). *British Medical Journal*, **2**, 417.
Strong, R. P. (1942). In Stitt's *Diagnosis, Prevention, and Treatment of Tropical Diseases*, 6th ed., **1**, 445. Philadelphia.
Wenyon, C. M. (1926). *Protozoology*, **2**, 1901. London.

INTRAUTERINE RUPTURE OF THE UMBILICAL CORD

BY

G. BANCROFT-LIVINGSTON, M.D., M.R.C.O.G.

Formerly Obstetric and Gynaecological Registrar, the Middlesex Hospital ; Flight-Lieutenant, R.A.F.V.R.

[WITH PHOTOGRAVURE PLATE]

Intrauterine rupture of the umbilical cord is a rare condition, and the recent experience of two cases in the practice of this hospital prompted this brief report. In both cases the rupture was due to absolute shortness of the cord—in one associated with a normal foetus which survived in spite of moderate blood loss ; in the other there was a gross exomphalos and deficiency of the anterior abdominal wall, the foetus succumbing soon after delivery.

Case 1

The patient was a primigravida aged 34. The estimated date of delivery was Aug. 15, 1946. In the third month of her pregnancy a mucoid carcinoma of low-grade malignancy was removed from the right axillary tail by local excision. This was followed by dissection of the glands in the right axilla. These showed no naked-eye or microscopical evidence of malignancy. Her antenatal period was otherwise uneventful and she went into labour spontaneously on July 31.

Full dilatation of the cervix was reached after a normal first stage lasting 18 hours. In spite of good uterine contractions during the second stage of labour the foetal head failed to descend. After 2 hours and 20 minutes in the second stage the patient was examined under anaesthesia. The occiput had rotated into the hollow of the sacrum. Manual anterior rotation was carried out without difficulty and Neville's forceps were applied. Moderate traction failed to secure descent of the foetal head. The forceps were removed and the patient was re-examined. The head was in a satisfactory position, with the occiput anteriorly well down in the pelvic cavity,

and no coils of cord were felt about the foetal neck. The pelvic outlet seemed satisfactory. (The examining hand had not passed beyond the neck of the foetus, since absolute shortness of the cord was not considered as a possible diagnosis.) The forceps were reapplied and very considerable traction exerted. There was a tearing sensation, and the true nature of the condition was suspected. Rapid delivery of the foetus followed, associated with a second-degree rupture of the perineum. The umbilical cord was seen to be ruptured, and blood was spurting freely from the foetal end. It was rapidly clamped with forceps, and the infant placed in its cot. The placenta delivered itself spontaneously 10 minutes later, with very slight blood loss.

The cord was found to be 10 in. (25 cm.) long, and neither it nor the placenta showed any abnormality on macroscopic examination. The infant was a female, weighed 6 lb. 13 oz. (3.1 kg.), and was apnoeic and moderately shocked. The upper respiratory passages were rapidly cleared, and an endotracheal catheter was then passed under direct vision. Artificial respiration was maintained with Gibberd and Blaikley's apparatus, and after 20 minutes the infant began to respire normally. Superficial abrasions and deep forcep marks were present about the head, and the left eye was somewhat oedematous. There was a right facial palsy. A blood examination made soon after delivery showed: Hb, 104%; red cells, 5,400,000 per c.mm.; blood group B. In view of these findings and the clinical condition of the infant, 60 ml. of group O blood was transfused via the right saphenous vein at the ankle.

A blood count next day showed: Hb, 108%; red cells, 4,800,000. After the first 24 hours the baby ceased to be a cause of anxiety, and in view of the maternal breast condition it was fed on "ostermilk" No. 1. It was discharged well on the sixteenth day. Unfortunately a haemoglobin estimation was not done on discharge. The mother's puerperium was uneventful.

Case 2

The patient was a 20-year-old primigravida. The estimated date of delivery was May 21, 1946. Her antenatal period had been uneventful except for the fact that the head had failed to engage in the pelvic brim before labour began. No overlap was detected, however. Labour began spontaneously on May 1, and the foetal head passed through the pelvic brim with ease. Full cervical dilatation was reached after 15 hours and the head had descended into the pelvic cavity. Strong uterine contractions for 2½ hours in the second stage failed, however, to effect delivery. Examination under anaesthesia confirmed that the occiput was lying anteriorly. Neville's forceps were applied and traction made. Very considerable force failed to secure any advance at first. There was a sudden sensation of "something giving way" and delivery proceeded unhindered. A living foetus of indeterminate sex suffering from a severe degree of exomphalos (see Photogravure Plate) was delivered; the umbilical cord had been ruptured *in utero*. There was no bleeding from the foetal end of the cord and the foetus survived for 15 minutes after delivery. The placenta and membranes were delivered shortly afterwards without difficulty, and the patient's puerperium was uneventful.

Discussion

Intrauterine rupture of the umbilical cord has been reported several times, but the foetus has seldom survived. Except in rare cases of cord pathology, the rupture is due to shortness of the cord, either relative or absolute. Relative shortness of the cord due to coiling round the neck or extremities of the foetus may lead to dystocia and intrauterine asphyxia, but is likely to be discovered before enough traction has been exerted to produce cord rupture. Absolute shortness, however, usually escapes detection until either rupture or placental separation occurs, as is demonstrated by the two cases here presented. Absolute shortness of the cord appears to be rare in the absence of associated umbilical deformity. In such cases the cord may be so short that the umbilical area is actually in contact with the placenta. Delivery may be extremely difficult, but the deformity is often so gross that it matters but little whether the cord ruptures or not during delivery.

Most authorities agree that the cord must not be less than 10–12 in. (25–30 cm.) in length for delivery to occur without difficulty. Should the cord be shorter than this it may rupture and the placenta become separated, or the uterus may be inverted if the condition is not diagnosed and delivery is effected from below. I am here concerned with absolute shortness of the cord only, as it has already been stated that vaginal examination should reveal those cases of relative shortness due to convolutions about the neck.

Is true shortness of the umbilical cord diagnosable? The points upon which diagnostic emphasis has been laid may be enumerated as follows: (1) The presence of a funic souffle; (2) recession of the presenting part between contractions after full cervical dilatation has been reached; (3) a discharge of blood with each uterine contraction; (4) periodic dribbling from the bladder due to intermittent pressure by the presenting part. It is difficult to believe that any of these points are of any diagnostic value, as they all occur more often in commoner conditions. It is easy to agree with Munro Kerr when he says: "It has been suggested that the condition has been diagnosed by the presence of the funic souffle and recession of the presenting parts between the pains. We have only found it possible to appreciate this complication whilst actually extracting the child and finding difficulty in so doing." Both the above cases illustrate the truth of this statement.

Titus (1937) suggests that the association of failure of the head to advance during the second stage and upset of the foetal heart rate denoting foetal asphyxia may be of diagnostic value. Faugère (1938) believes that a short cord may interfere with cervical dilatation. In neither of my cases was there any delay in labour, and it is difficult to see why there should be.

True shortness of the cord is rare enough to preclude generalizations regarding treatment. It is extremely unlikely that any hint of the condition will arise before the second stage of labour has begun. Second-stage delay in spite of contractions of adequate force will necessitate examination. Correction of foetal malposition and application of forceps and gentle traction will fail to effect delivery. Further examination at this stage will exclude relative cord shortness due to coils about the neck; and displacement of the presenting part and more extensive examination may reveal a truly short cord. In neither of the above two cases was this more extensive examination carried out. Should a truly short cord be discovered, the choice of treatment lies between caesarean section in a potentially infected case, therapeutic division of the cord followed by rapid delivery, or traumatic rupture followed by as rapid a delivery as possible. The choice of treatment would not be an enviable one, and, fortunately perhaps for the obstetrician's peace of mind, the line of treatment is often predetermined.

Summary

Two cases of intrauterine rupture of the umbilical cord are presented. In Case 1 the infant was normal, and rapid delivery after the nature of the accident was realized ensured a live birth. Blood loss was subsequently repaired by transfusion. Case 2 is an example of short cord associated with gross foetal abnormality, the more common finding. Neither of these cases was diagnosed early enough for any alternative line of treatment to be considered.

The diagnosis is considered, and the conclusion is reached that the condition is rarely suspected before the cervix has dilated fully and the head has failed to advance. The umbilical cord is unlikely to withstand moderate traction with obstetric forceps, but, as illustrated by Case 1, provided the nature of the accident is realized, the danger to the foetus can be

minimized by rapid delivery. Inversion of the uterus must be a very rare accident, and there are few records of placental avulsion due to short cord.

My thanks are due to Dr. E. E. Philipp for his help, and to Mr. S. Scarfe for his excellent photograph.

BIBLIOGRAPHY

Berkeley, Sir C., Bonney, V., and MacLeod, D. (1938). *Abnormal in Obstetrics*. London.
Curtis, A. H. (1933). *Obstetrics and Gynaecology*. Philadelphia.
Douglass, L. H. (1929). *Amer. J. Obstet. Gynec.*, **18**, 275.
Faugère, F. (1938). *Gynéc. et Obstét.*, **38**, 260.
Kerr, J. M. Munro (1937). *Operative Obstetrics*. London.
—— *et al.* (1940). *Combined Textbook of Obstetrics and Gynaecology*. Edinburgh.
McClintock, K. (1943). *British Medical Journal*, **1**, 446.
Morris, F. M. (1927). *J. med. Ass. S. Afr.*, **1**, 119.
Sackett, N. B. (1934). *Amer. J. Obstet. Gynec.*, **27**, 780.
Stander, H. J. (1945). *Textbook of Obstetrics*. New York.
Titus, P. (1937). *The Management of Obstetric Difficulties*. London.

Medical Memoranda

Pyopericardium

The majority of authors strongly favour surgical drainage. Silverberg (1940) could find only one case of recovery without operation. He regarded paracentesis as dangerous, but allowed that it might conceivably be justified as a diagnostic measure; he then went on to report one case of *Staph. aureus* pyopericardium with recovery after repeated tapping. Whittemore (1921) and Vander Veer and Norris (1939) each reported recovery after tapping only. Applebaum (1945) recorded one case which recovered after aspiration only. Wadsworth (1942) reported two cases, one of which recovered after aspiration. I have not been able to find any record of a considerable series treated by aspiration. Shipley and Winslow (1935) analysed 99 cases treated by surgical drainage; 49 recovered, while 46 died. Norman and Ainsworth (1945) reported one case treated by catheter drainage and penicillin instillation.

CASE REPORT

A prisoner of war in Japanese hands, aged 25, was found to have left-sided tuberculous empyema on his release in September, 1945. Thick pus containing *Mycobacterium tuberculosis* was aspirated. He was evacuated to New Zealand, where aspiration was repeatedly carried out. In April, 1946, he returned by hospital ship to England. He was considered then fit to go on leave. In May, however, he developed low backache and had a continuous fever up to 103° F. (39.4° C.) for over two months. In August the leucocyte count was 10,500, with 68% neutrophils. At the same time pericardial effusion was diagnosed clinically and confirmed by *x*-ray examination and aspiration of green pus containing *Staph. aureus haemolyticus* which was penicillin-sensitive. Six aspirations, each of about 200 ml. of pus, were carried out over a period of four weeks, and on each occasion 400,000 units of penicillin was introduced. By the middle of September he was afebrile. It was thought at this time that the pericarditis was primarily tuberculous, with a secondary *Staph. aureus* infection superimposed, but Loewenstein culture and direct examination of Ziehl–Neelsen films were negative throughout for *M. tuberculosis*.

In October recurrence of fever was treated without effect by a course of sulphadiazine, and subsequently a parenteral course of 3,000,000 units of penicillin was given, also without effect. Severe and persistent pain in the left shoulder was a prominent symptom.

On Nov. 27 he rapidly became gravely ill with cardiac tamponade and pleuro-pericardial friction. Blood pressure was 95/65 mm. Hg, with pulsus paradoxus. A skiagram showed gross increase in the cardiac shadow. Severe abdominal pain also occurred, and physical examination suggested peritonitis. The aspirations had previously been performed by the subxiphisternal route, and it was thought that pus might be leaking down one of the former needle tracks. On the same day parasternal paracentesis yielded 39 oz. (1.1 litres) of thick pus containing a pure culture of *Staph. aureus haemolyticus* which was again penicillin-sensitive, although the sensitivity was one-third that of the standard Oxford strain. Intramuscular penicillin, 50,000 units three-hourly, was given for nine days, and the peritoneal signs gradually subsided without surgical intervention.

The pericardium was aspirated through a large-bore needle on alternate days for 14 days, and 100,000 units of penicillin was injected into the pericardium through a finer needle twice daily for six days and once daily for a further five days. Cultures of the pus still yielded a pure growth of *Staph. aureus haemolyticus*, and no further penicillin was used. The third to seventh aspirations were accompanied by pericardial lavage with normal saline, washing being continued until the returning fluid was only slightly turbid.

On Dec. 12 the hospital was closed and the patient was moved 100 miles by ambulance without harm. He has required no further aspiration. Unfortunately an *x*-ray film taken in July, 1947, shows that a previously static focus of tuberculous infiltration in the right lung has again become active and now requires further treatment. Nevertheless he has been ambulant for about two months, free from symptoms of cardiac disability, and has enjoyed 10 days' leave from hospital.

COMMENT

This case seems to justify a contention that pericardial paracentesis holds out good hope of success in the treatment of pyopericardium, and that the former strong bias towards surgical intervention should now be reviewed. The combination of aspiration with intrapericardial lavage and penicillin presented no great technical difficulties, and there was no evidence of any irritation of the pericardium by penicillin. The final outcome, apart from the tuberculous infection, remains conjectural, but eventual pericardial symphysis appears inevitable, although there are no signs of it at present.

A. L. WINGFIELD, M.D.,
Lieutenant-Colonel, R.A.M.C.

REFERENCES

Applebaum, I. L. (1945). *Mil. Surg.*, **96**, 424.
Norman, H. B., and Ainsworth, R. M. (1945). *British Medical Journal*, 1, 806.
Shipley, A. M., and Winslow, N. (1935). *Arch. Surg.*, Chicago, **31**, 375.
Silverberg, M. D. (1940). *Arch. Pediat.*, **57**, 572.
Vander Veer, J. B., and Norris, R. F. (1939). *J. Amer. med. Ass.*, **113**, 1483.
Wadsworth, G. H. (1942). *Surg. Clin. N. Amer.*, **22**, 432.
Whittemore, W. (1921). *Surg. Gynec. Obstet.*, **32**, 371.

A Fatal Case of "Malignant" Syphilis

The general and skin manifestations of early syphilis respond quickly to penicillin therapy, and, as Dexter and Tucker (1946) have shown, gummata of the skin can also be expected to improve rapidly with penicillin treatment.

The following case report may be of interest for two reasons: (1) "Malignant" secondary syphilis with profound toxaemia and weakness is very rare; in 857 cases of secondary syphilis Kampmeier (1944) saw only one case. (2) Penicillin therapy produced very little effect on the skin or mouth lesions; it had no effect on the toxaemia, the case ending fatally.

CASE REPORT

The patient, a widower aged 59, was seen on Sept. 18, 1947, at the request of Dr. Veale, who had been called in consultation by the patient's doctor. There was a history of exposure to infection between six and nine months previously. About the end of May, 1947, a rash appeared on the trunk and spread to the limbs and genitals. His voice became hoarse, he started to lose weight, and there was increasing weakness.

On examination he was extremely emaciated, his skin had a dull *café au lait* colour, the voice was hoarse, and he was so weak that he could scarcely move himself in bed. He had an extensive rupial eruption on the trunk and limbs. There were indurated impetiginous ulcers on the glans penis. Over the shaft of the penis and scrotum moist papules had coalesced to form moist and crusted patches. A few mucous patches were seen on the buccal mucosa. He had an indurated glossitis and ulcers on the margin of the tongue. In the midline of the palate there was gummatous ulceration, but it had not penetrated deeply. Ulceration was also present in both fauces. The inguinal and superficial cervical glands were enlarged. Examination of the blood showed: red cells, 4,800,000 per c.mm.; white cells, 7,500 per c.mm. (differential count normal); Wassermann reaction, positive. The temperature was 98° F. (36.7° C.), pulse 90, and respirations 20.

Treatment.—Penicillin therapy was started on Sept. 18, 10,000 units in saline being given three-hourly for three days, the dosage then being increased to 40,000 units three-hourly. The total penicillin given was 2,680,000 units. With this treatment the moist patches on the penis and scrotum became smaller and drier, and the ulceration of the tongue improved. Penicillin had no effect on the general condition, and the patient gradually became weaker and his mind very confused. General medical measures failed to improve his condition. "Mapharside," 0.03 g., was also given, but the patient was *in extremis*, and died on Sept. 27.

At post-mortem examination a slight hypostatic congestion of the lungs was seen, but no other macroscopic abnormality, and death appeared to have been due to the luetic infection.

Dept. for Venereal Diseases, General Infirmary at Leeds.

ROBERT LEES, M.D., F.R.C.P.Ed.
WILLIAM FOWLER, M.B., Ch.B.

REFERENCES

Dexter, D. D., and Tucker, H. A. (1946). *Amer. J. Syph.*, **30**, 211.
Kampmeier, R. H. (1944). *Essentials of Syphilology*, p. 148. Blackwell, Oxford.

Reviews

INTRACELLULAR MISSIONARIES

Nucleic Acid. Symposia of the Society for Experimental Biology. No. 1. (Pp. 290; illustrated. 35s.) Published for the Company of Biologists on behalf of the Society for Experimental Biology by the Cambridge University Press. 1947.

This book, the first of an annual series of reports, contains the 19 papers read in 1946 at the Cambridge meeting of the Society for Experimental Biology. It sets a high standard for the rest of the series, both in the presentation and in the importance of the subject matter. In the words of one of the contributors, C. D. Darlington: "We are now witnessing, after the slow fermentation of fifty years, a concentration of technical power aimed at the essential determinants of heredity, development, and disease. This concentration is made possible by the common function of nucleic acid as the molecular midwife of all reproductive particles. Indeed it is the nucleic acids which, in spite of their chemical obscurity, are giving to biology a unity which has so far been lacking, a chemical unity." The exaltation of nucleic acid to such prominence is due to a series of independent and surprising discoveries. Thus, cytochemical tests have shown that nucleic acid is not restricted to nuclei but occurs also in the cytoplasm of normal and abnormal cells, especially in regions of active protein synthesis. Micro-analysis by ultra-violet absorption enables purines to be located in cell structures. Titration curves indicate that nucleic acids are not uniform polymers of a tetranucleotide unit but are assembled from irregularly distributed mononucleotides, which makes possible the existence of a large number of isomeric nucleic acids, so that variety in gene constructions is provided for. Virus studies have shown that some viruses at least are crystallizable nucleoproteins.

The paradoxical status of nucleic acid in chromosome mechanics is being revealed. Built up by the chromosomes, it is used to build up the chromosomes, each unit being thereby endowed with a set of physiological attributes and the additional attribute of being able to reproduce the set in the daughter cell. Consequently the nucleic acids can be regarded as fertile missionaries, propagating their kind as well as their creed, sometimes to the detriment of the entire community when the agent happens to be a virus. The evidence for these conclusions, and much else, is given and criticized in the several contributions to this stimulating symposium.

W. R. FEARON.

ASPECTS OF GOITRE

On Goitre and Allied Diseases, Especially Thyrotoxicosis, With Particular Reference to the Surgical Treatment. By John Hertz, M.D. Translated from the Danish by Hans Anderson, M.D. (Pp. 586; illustrated. 40s.) Copenhagen: Einar Munksgaard. London: Geoffrey Cumberlege (Oxford University Press). 1943.

The publication date of this book should be noted. In medicine, especially in endocrinology, five years are a very long time. They become relatively even longer when half of them are years of war, when the osmosis of information across almost impermeable frontiers is a slow and laborious process. This book is out of date through no fault of its own. It contains no reference to thiouracil and its derivatives, which have revolutionized not only the treatment but the understanding of thyroid disease. The more recent English work on the ophthalmic aspects of Graves's disease seems to be unknown to the author, whose knowledge of earlier work is commendably international. He does not mention the muscular complications of thyrotoxicosis or the relationship between the thyroid and the thymus; indeed his discussion of the relationship between the thyroid and the other endocrine glands is most inadequate. He does not even mention radioactive iodine.

Yet one cannot withhold from this book a certain meed of praise. It is a most painstaking work and gives the impression that the author has read carefully and absorbed completely everything that has been written about thyroid disease in every country and language from the Middle Ages until about 1940. Occasionally he has misunderstood what he has read: the king's evil, for instance, was scrofula, not goitre, and there is no reason to believe that Dr. Samuel Johnson suffered from thyrotoxicosis. He has not always found it possible to attempt a critical assessment of his vast reading, which is understandable when one calculates, from internal evidence, that his personal experience was then limited to about 100 cases. It is natural in an author of such small practical experience that he should sometimes have difficulty in making up his mind. He is notably confused on the question of ligation of the inferior thyroid arteries, and it is clear that he had then never split the sternum. He exaggerates the difficulty of operations for relapse and wastes space in discussing various complications of treatment which from time to time have had their day and departed to deserved oblivion.

Despite all this, the book is of very great value, not as a contribution to knowledge, but as a source book. This is especially true of the historical chapter; with a little expansion it is worthy of separate publication. It will be very interesting to read a second edition, which it is to be hoped the author will prepare when he has treated 1,000 cases of thyrotoxicosis.

RAYMOND GREENE.

EYE TREATMENT

Office Treatment of the Eye. By Elias Selinger, M.D. (Pp. 542; 67 figures. 43s.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

This is a novel type of book in which the author discusses the aetiology, symptomatology, and treatment of those diseases of the eye that can be adequately tackled in the consulting-room and the home. This necessarily results in a somewhat artificial choice of subject matter, and Selinger is certainly courageous in the procedures he carries out without hospital facilities—iridectomy for a prolapsed iris after trauma, the removal of a foreign body penetrating the cornea and into the anterior chamber by pushing it backwards through the cornea with a knife introduced into the anterior chamber under general anaesthesia, plastic operations on the lids, and so on. In fact, the book is a general textbook of ophthalmology which omits description of the major surgical procedure.

The teaching throughout is in general sound and up to date, and one or two suggestions are novel (in the reviewer's experience) and interesting—such as the formation of a new punctum by passing a suture through the everted punctum to emerge on the conjunctival surface of the lid and leaving it for some weeks until epithelization occurs. As is common in America the author advises us to correct errors of refraction up to the age of 50 under homatropine mydriasis and as a routine to measure the intraocular tension tonometrically before and after the pupils are dilated in all patients over 30 and preferably over 25, which seems an elaborate procedure. Despite these precautions the author states that such a routine has precipitated a congestive glaucoma in three cases in his experience. He claims that these patients were better off "because a glaucoma which might otherwise have remained undetected was discovered," but from the social and medico-legal point of view it might be argued that the advent of an acute glaucoma, if it cannot be anticipated, is more happily left to an act of God than ascribed to the ophthalmologist. The book is interesting and instructive, well written, and luxuriously produced.

STEWART DUKE-ELDER.

RESTORING FACIAL CONTOUR

Rhinoplasty and Restoration of Facial Contour. With Special Reference to Trauma. By Jacques W. Maliniac, M.D. (Pp. 341; 214 figures. $7.50.) Philadelphia: F. A. Davis Company. 1947.

Dr. Maliniac has written an interesting book, though its use to the British surgeon is limited. In the first three chapters he discusses a few points of historical and anatomical interest, well illustrated by excellent diagrams. He then considers the aetiology and diagnosis of fractures of the nose. The author stresses the need for reduction soon after injury because these fractures consolidate within fourteen days. There is a detailed account of damage to the nasal septum and of operative measures for correction. The author refers to concomitant fractures of the maxilla but gives the impression that severe fractures of the nasal bones and septum are of greater

importance. He describes a method of local analgesia for all reparative surgery of the nose, but it is not one that would meet the requirements of British surgeons.

The use of profilometers and plaster casts that the author recommends for the planning of reparative operations is of little value and may be described as "window dressing." He gives a summarized account of the types of splint used to maintain reduction: in my opinion the leather headcap illustrated is useless. The author recommends using intranasal splints, which in turn are fixed to extranasal splints; it is the experience of plastic surgeons in Britain that intranasal splints are badly tolerated and usually do more harm than good.

He quotes Brown's work on composite free grafts in detail, and the results fully justify his doing so. A large section of the book comprises illustrations and brief descriptions of well-known methods of repair of nasal defects and injuries of the septum. In the section on radiology he considers simple fractures of the nose; the discussion is a repetition of the elementary anatomy of the nose described earlier in the book.

F. T. MOORE.

HOSPITAL ADMINISTRATION

Secretarial Practice and Office Administration for Hospitals. By Capt. J. E. Stone, C.B.E., *M.C.*, F.S.A.A., F.R.Econ.S., F.S.S., F.H.A. Foreword by Sir Ernest Pooley, K.C.V.O., M.A., LL.B. Introductions by Capt. H. Brierley, O.B.E., *M.C.*, and Mr. S. Clayton Fryers, F.H.A. (Pp. 204. 21s.) London: Faber and Faber. 1947.

All interested in hospital administration will find any contribution by Capt. Stone on a subject connected with it well worthy of careful attention. His new book will serve as a useful companion volume to his *Hospital Organization and Management*, already regarded as a classic. He writes in the same forthright manner, for he knows his subject thoroughly; he is satisfied that there is a right way of doing a job and has no hesitation in saying so. He discusses his subject in a practical way, no space being given up to policy or theory. He shows clearly that the office work of hospitals is not necessarily different from similar work in business, and that there is no more justification for antiquated or slipshod methods in the one than in the other. Indeed business men might well study this book: much of it—particularly the chapter on style of writing, in which he criticizes the approved clichés—ought to reach a wider public. We thoroughly recommend the book to all hospital authorities.

ANDREW TOPPING.

PHARMACOLOGY FOR STUDENTS

The Essentials of Materia Medica, Pharmacology and Therapeutics. By R. H. Micks, M.D., F.R.C.P.I. Fourth edition. (Pp. 399. 18s.) London: J. and A. Churchill. 1947.

This book was first published in 1935, and since it has now reached a fourth edition it must be fairly widely read by medical students, most probably in preparation for examinations in pharmacology. Teaching on the use of drugs can be based either on their action as seen in the animal or on clinical experience. In recent years instruction founded on experimental observations has been increasingly successful, as may be concluded from the growing appreciation of books like that by Goodman and Gilman in America and those by Clark and by Gaddum in Britain. In so far as the medical student can be taught to link up his clinical work with his knowledge of what has been shown by experiment he ceases to belong to the class of doctor who has been obsolescent in the U.S.A. since 1920.

This book represents predominantly the clinical experience of the author, which he presents in many places in a somewhat dogmatic way. For many students this offers the advantage that the subject-matter is easy to learn, and in so far as pharmacology is reduced to a nodding acquaintance with the medical use of a large number of substances the student should find all he needs to know, including accounts of drugs introduced very recently. In this edition the author has revised the section on general anaesthetics and narcotics, but it may be doubted how much wiser the student will be after reading the account of the stages of narcosis. This seems to be an exception to the clarity of presentation which prevails elsewhere.

J. H. BURN.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

British Surgical Practice. Vol. II. Edited by Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., and J. Paterson Ross, M.S., F.R.C.S. (Pp. 540. £3.) London: Butterworth. 1948.

Conditions listed alphabetically from "Backache" to "Bursae."

Akute Äussere Prozesse. By Dr. Josef Riese. (Pp. 326. 40 Swiss francs.) Vienna: Verlag Wilhelm Maudrich. 1948.

A manual of acute external surgical conditions.

Medicine. Essentials for Practitioners and Students. By G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H. 5th ed. (Pp. 831. 30s.) London: J. and A. Churchill. 1948.

Much new material has been added to this well-known textbook.

Nature's Own Zoo. By C. M. Beadnell, C.B., F.Z.S. (Pp. 141. 7s. 6d.) London: Watts. 1948.

Stories of natural history for children.

Medizinische Terminologie. By Dr. Rudolf Abderhalden. (Pp. 1,213. 32 Swiss francs.) Basle: Benno Schwabe. 1948.

A medical dictionary; in German.

Telepathy and Medical Psychology. By Jan Ehrenwald, M.D. (Pp. 209. 12s. 6d.) London: George Allen and Unwin. 1947.

A short account of telepathy occurring in psychotherapy.

Hindu Psychology. By Swami Akhilananda. (Pp. 241. 12s. 6d.) London: George Routledge. 1947.

A criticism of Western psychology and an introduction to Hindu thought.

Fundación Lucas Sierra. First Jornada Clinica, 1947. (Pp. 304. No price.) Chile: Uña del Mar. 1947.

Papers on various topics, including diabetes, cholecystitis, and jaundice.

Diseases of the Nose, Throat and Ear. By W. L. Ballenger, M.D., F.A.C.S., and H. C. Ballenger, M.D., F.A.C.S. 9th ed.; illustrated. (Pp. 993. 63s.) London: Henry Kimpton. 1947.

A textbook for the specialist; much new material for this edition.

Microscopic Anatomy of Vertebrates. By James I. Kendall, Ph.D., D.Sc. 3rd ed.; illustrated. (Pp. 354. 30s.) London: Henry Kimpton. 1947.

A manual for the student of comparative anatomy.

A Textbook of Mental Deficiency. By A. F. Tredgold, M.D., F.R.C.P., F.R.S.Ed. 7th ed. (Pp. 534. 30s.) London: Baillière, Tindall and Cox. 1947.

Mental deficiency is discussed and types described and illustrated with photographs.

Handbook of the Scientific Instrument Manufacturers' Association of Great Britain, Ltd. (Pp. 219. 10s. 6d.) London: The Secretariat, 26, Russell Square, W.C.1. 1947.

A list of member firms and their products.

Esiste una Vaccinazione Spontanea nella Tubercolosi? By Armanda Sala. (Pp. 55. No price.) Padova: Societa Cooperativa Tipografica. 1947.

A monograph on vaccination against tuberculosis by means of dead bacilli taken by mouth.

L'Œuvre de Louis Pasteur. By Henri Simonnet. (Pp. 106. 220 francs.) Paris: Masson and Cie. 1947.

A short review of Pasteur's work.

Vaccination par le B.C.G., par Scarifications Cutanées. By L. Nègre and J. Bretey. 2nd ed. (Pp. 107. 180 francs.) Paris: Masson et Cie. 1947.

A monograph on B.C.G. vaccination in man.

La Pénicilline en Oto-Rhino-Laryngologie. By J. Terracol and J. Lapouge. (Pp. 150. 220 francs.) Paris: Masson et Cie. 1947.

A monograph on the clinical applications of penicillin.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY MARCH 6 1948

ONLY A BEGINNING

During the past three months few supporters of the Act have contributed to our correspondence columns. In each of three successive weeks a rough estimate showed that we were receiving between 20,000 and 30,000 words in letters from medical men in Britain. Not all these letters could find their way into print, but to be fair to the supporters of the Act a much smaller percentage of their letters was rejected than of those from opponents of the Act. It is right that those who disagree with the B.M.A. and are in favour of the Act should have the opportunity of expressing their opinions. We therefore open this week's correspondence columns with letters from two influential medical men who are members of the Socialist Medical Association and advocates of the National Health Service Act, the provisions of which are in part or in whole disapproved of by the overwhelming majority of the medical profession of this country. The first letter is from Dr. Stephen Taylor, M.P., who was formerly on the staff of the *Lancet* and is now Parliamentary Private Secretary to Mr. Herbert Morrison. Dr. Taylor has been loyally supporting the policy of his party, and many medical men have probably read the debate between him and Dr. Charles Hill in the recent issue of *Picture Post*, and have also heard him in the debate over the air with Dr. R. W. Cockshut, a member of the B.M.A. Council. He is, if we may say so without appearing to be patronizing, an able man whose willingness to argue in public with those who disagree with him commands respect. The second letter in this week's *Journal* is from Mr. Aleck Bourne, a consultant who by his contributions to medicine has earned the right to be called "eminent" in his own field of work. Though we may disagree with the opinions of these two medical men, what they say demands the careful consideration which should be given to opinions sincerely held by men of intelligence.

Mr. Aleck Bourne is at some pains to explain away the results of the plebiscite. The B.M.A., he says, "might have assumed around 56,000 Noes without troubling to ask the question"—that is, the first question in the plebiscite. If the plebiscite had resulted in a majority of approval, we may beg to doubt whether Mr. Bourne would have troubled to write to the *Journal* questioning the interpretation to be put on it. He believes that what he calls the *volte-face* of the whole-time medical officers of health is due less to consideration of the Act than to disapproval of Mr. Aneurin Bevan as Minister. But he does not ask whether this was also the motive of the 634 whole-time Government medical officers. Like all powerful political figures, Mr. Bevan has his enemies, and he would certainly seem to have trailed his coat before the medical profession, or, at least, before the B.M.A. It is, of course, possible that some men may have voted the way they did from animosity to Mr. Bevan. It is also possible that some men voted Yes out of animosity to the B.M.A. But it is idle to suggest that such a huge proportion of an intelligent section of the community should be so irresponsible as to arrive at a decision out of personal pique. Mr. Bourne and those who think as he does should reflect that there is something seriously wrong with the present National Health Service Act when large majorities of every section of the profession express their disapproval of it, especially when it is borne in mind that the medical profession as a whole has agreed with the principle of providing a comprehensive medical service for the whole community. There must obviously be many and varied grounds for disapproval, but we believe that there is one common factor—and that is the grave fear of the effect upon the art and science of medicine of the nationalization of what has hitherto been an independent and free profession. It is not necessary to look far across the Channel to see how easily these days liberty and freedom are trampled upon in the name of that much interpreted word "democracy." We agree with Mr. Bourne's view that "now is the time for wisdom, vision, and sense of proportion; not for emotion, heat, battle-cries, and the metaphors of war." One of his observations, however, will cause considerable surprise. He writes: "If the B.M.A. attempts to lead the profession into conflict on July 5 by continued *refusal to accept the Minister's offer to re-examine the four unacceptable provisions of the Act* it must fail. . . ." (Our italics.) The Minister of Health has made no such offer. We cannot forecast what the attitude of the Council of the B.M.A. would be if such an offer were made, but it seems highly unlikely that the Council would refuse to re-examine with the Minister what Mr. Bourne describes as "the four unacceptable provisions of the Act."

An air of sweet reasonableness pervades the letter by Dr. Stephen Taylor. He appeals to the B.M.A. "as a group of good constitutional democratic reformers." But Dr. Taylor seems to forget that the efforts of these good constitutional democratic reformers have been completely without avail. For eight months last year the Negotiating Committee argued patiently with the officers of the Ministry of Health on points which to them as workers in the new Service were held to be unacceptable. The Negotiating Committee had reason to believe that some at least of these points were looked upon by the Minister's officers as reasonable ones. But all this hard work was brought to naught by the Minister when he met the Negotiating Committee on Dec. 2 and 3. In fact, the Minister told the Committee that his officers had no right to hold opinions, but were there to administer policy. In this he was no doubt constitutionally accurate, but it made the negotiations entered into with his approval, and with the possibility of amendment of the Act in mind, rather farcical.

Dr. Taylor persuasively examines some of the points at issue and tries to whittle away each one of them. The only positive suggestion he has to make is that those who wish

should be able to pay their basic salary to the superannuation fund—a somewhat ingenuous avoidance of the real objection to the basic salary. Dr. Taylor, in fact, advises the medical profession to come into the Service and then get the Act amended when it is seen to be unworkable in this, that, or the other respect. But what confidence can the medical profession have in their ability to do this once they are all in a State medical service, knowing that when they were independent they failed to secure modifications which would make it possible for them to enter the Service? And Dr. Taylor once more begs the question in his statement that "any attempt to frustrate the law by extra-parliamentary means is bound to end in failure"; and he reminds us of the General Strike of 22 years ago. The position of the medical profession is perfectly clear. It seeks to amend the Act and conditions of service so as to make it possible for doctors to take part in it as willing co-operators with the Government in providing an efficient medical service for the nation. If the medical profession cannot persuade the Government to introduce such modifications it remains free in the terms of the Act itself and in accordance with the utterances of the Minister of Health not to accept service under the Act. The position is quite unambiguous, and Dr. Taylor knows it.

We have asserted over and over again in these columns that it is the intention of the present Government to introduce a full-time salaried medical Service. It is because of this intention that the medical profession resists the payment of the general practitioner partly by salary. Government spokesmen have rubbed in the fact that it is by salary that they will be able to control general practitioners, because of the Treasury's fear that the doctor's certificate will lead to a heavy drain on the social insurance funds. The motive behind basic salary is distrust of the doctor. Dr. Taylor considers that the medical profession is safeguarded by the Government's declaration that it has no intention of introducing a salaried service. Those who recall the Government's promise in 1940 that the E.M.S. was not a step towards the introduction of a State hospital service now know what value to attach to Government promises made, no doubt, in good faith at the time they were made, but quickly forgotten after a lapse of a few years. The fears of the medical profession are endorsed and completely justified by a published statement made by Mr. Somerville Hastings, M.P., in December,[1] in the same month in fact that Mr. Bevan was putting before the Negotiating Committee his proposals for a universal basic salary. "*Before long,*" Mr. Somerville Hastings writes, "*the logic of events will make clear that for a really efficient Service full-time salaried officers are essential*" (our italics). Mr. Somerville Hastings is a very influential medical figure in the Labour Party, and the profession should be grateful to him for giving them this warning and for having the honesty to state what we know to be the intention of the Labour Party. "The National Health Service Act," he writes in the same article, "makes a beginning of the socialization of one of the learned professions and the conversion of a series of commercial enterprises into a national service run for the public good. Of course," he adds, "it is only a beginning. . . ." He observes that the health centres provided for in the Act are an essential part of the new Service. "An inalienable part of the health centre idea," he observes, "is team work by all who are working in and from these centres"; and then comes another warning which general practitioners should take to heart: "But how can this be possible in the case of doctors paid by capitation and inevitably, therefore, competing with one another for patients?" In the light of these observations it is easy to understand why the Minister of Health ignores the Negotiating Committee's request that the method of remuneration by capitation fee should be embodied in the Act, and why he adheres to the idea of a universal basic salary. The plan behind the present National Health Service Act is plain. It is a State medical service, and if the present Government is given another five years of office in the next election Mr. Somerville Hastings's logic of events will be followed to a logical conclusion.

[1] *Medicine To-day and To-morrow*, Dec., 1947, 6, No. 4, 12.

LUPUS VULGARIS AND VITAMIN D

For many years the management of lupus vulgaris has been a troublesome problem to the dermatologist. Though fortunately not a particularly common disease, its chronicity and resistance to treatment combined with the unsightliness it so often produces have made it one of the most awkward of the problems connected with tuberculosis. It is true that considerable progress has been made during the last half-century, beginning with the discovery by Finsen of the beneficial effect of light, a discovery which was developed by Sequeira with much success at the Queen Alexandra Institute of the London Hospital, for many years the Mecca of sufferers from cutaneous tuberculosis. More recently local treatment by means of concentrated light has been reinforced by general light baths, and this has reduced the percentage of refractory cases very considerably; but it has always been a prolonged and tedious method of treatment, and the great expense involved has discouraged other institutions from emulating the example of the London Hospital in making special provision for Finsen-light treatment. The public conscience was aroused long ago over the treatment of tuberculosis, but lupus, being a non-fatal complaint, has never been taken as seriously as it deserves by the various health authorities concerned. Special centres with an adequate number of beds and staffed by the appropriate specialists have never been provided. All over the country there are ill-equipped out-patient clinics at which patients suffering from lupus attend more or less regularly for many years. Some few are benefited and even cured, but there are many in whom the disease remains stationary or even progresses. Fortunately there is now fresh hope for these patients.

The usefulness of cod-liver oil in the treatment of many forms of tuberculosis has of course long been known, and it appears that it occurred quite independently to Charpy in France and to Dowling in London to try the effect on lupus of treatment with large doses of calciferol. Charpy began his work in 1940, but his results were first published

in 1943 in an extremely short communication to the Lyons branch of the French Society of Dermatology in July of that year, and this was followed in December by another communication to the Paris meeting of the Society. And it may here be remarked that surely there never was a discovery of a new therapeutic method of great importance so modestly announced. Dowling began his observations in 1943, and his first patient was a severe case which had been treated unsuccessfully by Finsen light and general light baths for a number of years, and which after three months' treatment with calciferol improved dramatically. We suspect that in this first instance the calciferol must have been given as a forlorn hope. Thus encouraged, Dowling and his colleague Prosser Thomas collected all the cases they could find, and in November, 1945, were able to demonstrate the value of the new remedy by exhibiting 11 of their patients to the Dermatological Section of the Royal Society of Medicine. A great impression was made on those present, and since then the excellent results they reported have been confirmed by other dermatologists all over the country.

The employment of calciferol in large doses for the treatment of lupus is now recommended in the textbooks, and in the recent edition of Gardiner's well-known handbook Kinnear writes that it is the treatment of choice. But that of course is not the end of the matter. In this issue of the *Journal* we are publishing a report by Dowling containing his observations on a series of 44 cases treated in the Treloar Hospital and the Morland Clinics at Alton, institutions which have for many years been devoted to the treatment of tuberculosis, especially in the young. The patients there are resident and therefore much more easily observed and controlled than if attending a crowded out-patient department. (It is interesting to find that one of his colleagues in this investigation is Dr. Suzette Gauvain, the daughter of the late Sir Henry Gauvain, who was Medical Superintendent of the Treloar Hospital from its foundation until he died.)

Three important questions are now raised by Dowling and his colleagues. First, how does calciferol act? Secondly, how can it be used most effectively? And thirdly, can it be made safe or relatively safe? We are far from being able to answer as yet the first of these questions. We can only say that calciferol certainly does not owe its curative properties to its direct action on the tubercle bacillus, for even *in vitro* it has none. It seems to act in the same way as the older remedies such as cod-liver oil, heliotherapy, and ultra-violet light baths, which all depend on vitamin D for their action, but in the massive doses now employed—100,000 to 150,000 i.u. per day—calciferol promotes much more rapid healing of tuberculous tissue. It appears that a strong stimulus is given to the connective tissue, which proliferates actively, invading and breaking up the granulomatous deposit.

Such an active remedy as this is not likely to be free of dangers, for, as Dowling says, few remedies are absolutely safe, and slight signs of toxicity are not infrequent. They were noticed in 17 of the 34 adult cases treated at Alton, and it is a curious fact that clinical improvement in the disease has often been most marked during the toxic phase. It is probable, therefore, that the most effective therapeutic dose is very near the toxic limit. The signs of calciferol poisoning are pallor, thirst, polyuria, headache, loss of appetite, and sickness. There is always a rise in the blood sedimentation rate, and in children a rise in the blood urea. Results very similar to those of Dowling and his colleagues at Alton were reported in last week's *Journal* by Powell, Pearsall, and Wigley, from the Dermatological Department at Charing Cross Hospital, but the latter workers seem inclined to prefer pure calciferol in alcoholic solution to the high potency "ostelin" tablets used by Dowling and his colleagues. This resembles the method of administration employed by Charpy, and, they state, seems less inclined to produce toxic symptoms than the ostelin tablets.

Valuable as this new method of treatment is, it will certainly not cure all cases of lupus vulgaris. The Charing Cross team estimate that it is safe to assume that about 60% of the cases may be cured by calciferol alone, while the Finsen Institute in Denmark claims about 75% by the employment of actinotherapy, etc. Dowling and others point out that, though calciferol reinforces enormously the effect of local treatment, it does not replace it. In patients whose treatment was begun with calciferol improvement was greatly accelerated when local treatment was added, and it was also found that in patients with extensive disease who had been receiving actinotherapy for long periods the patches so treated were the first to respond to calciferol. A further advantage was that the plastic operations so often required in cases of severe lupus could be undertaken much sooner than was possible when calciferol was not used. In such cases the drug seems to promote the early healing of wounds. It is therefore not likely that the elaborate centres which have been required for the satisfactory treatment of lupus vulgaris can be dispensed with, but obviously much better and more rapid results will be achieved than hitherto.

A further question which must occur to everyone is, Does calciferol prove effective in other forms of tuberculosis? It has already been tried in 31 adult cases of non-cutaneous tuberculosis at Alton, with on the whole extremely good results—especially on tuberculous glands, in which it produced rapid shrinking and calcification. In last week's *British Medical Journal* Ellman and Anderson described the remarkable improvement which followed the administration of calciferol to a patient severely ill with tuberculous peritonitis. In tuberculosis of the larger joints, however, results have been rather disappointing. It is also a disappointment to find that Sandiland and Franklin, trying out the effect of calciferol on pulmonary tuberculosis at the Kettlewell Hospital, Swanley, have met with no success whatever. Bearing in mind that actinotherapy in phthisis has long been known to be unsatisfactory, and indeed often extremely dangerous, it is not surprising that calciferol, the action of which seems to be closely allied to that of actinotherapy, should also prove a failure in this field. Nevertheless there is no doubt that we have here a new therapeutic method of great importance.

CHONDROMALACIA PATELLAE

Chondromalacia patellae is a condition of osteoarthritis of the knee limited to the patello-femoral articulation. The cartilage on the under surface of the patella becomes roughened and fibrillated, and hence the knee grates on movement. Small osteophytes grow on the periphery, and the synovial membrane becomes sensitive where it is attached to the border of the patella. Quite young adults may suffer from chondromalacia patellae, and therefore its aetiology probably differs from ordinary osteoarthritis, which can be regarded as a senile degeneration following faulty nutrition of the articular cartilage. Many of the patients report a previous injury, and it is known that large fragments of bone and cartilage are not infrequently broken off from the back of the patella to become loose bodies in the knee-joint.[1] It seems likely, therefore, that the degeneration results from repeated minor injuries caused by the patella moving on a bed that does not fit it exactly. The patella is constructed to move up and down on the femoral condyles. Nature never meant it to move sideways, but it frequently does when there is a lack of balance between the medial and lateral vasti muscles.[2] According to some observers chondromalacia is always found on patellae that are subject to recurrent dislocation.[3] Excision of the patella in preference to the more orthodox realigning operations is advised by McFarland[4] in cases of recurrent dislocation, since he believes that chondromalacia will inevitably result in a degenerated painful patello-femoral articulation in later life.

The symptoms of chondromalacia patellae are those of osteoarthritis in general—giving way, pain after use, and stiffness after sitting. The giving way, besides being due to a reflex inhibition of the quadriceps muscle in response to a twinge of pain, may be caused mechanically if, as sometimes happens, the cartilage on the back of the patella is split tangentially to the surface to form a loose flap. The pain, which is more of an ache than a real pain, is located in the knee. Coarse grating can be felt when the patella is pressed down on the femur and moved from side to side, and this manœuvre causes pain. Movements of the knee, though full, are painful through a small arc. Many knees otherwise normal creak and grate when moved, and the diagnosis of chondromalacia patellae should not be made unless the grating is painful and unless there is a painful arc of movement, particularly since the patient is in danger of having his knee-cap removed once the diagnosis is made.

There seems no doubt that chondromalacia patellae is a clinical entity, but whether it warrants operative treatment is open to question. The condition has been brought into prominence by Swedish surgeons.[5] They advocated paring off the fibrillated cartilage and removing the peripheral osteophytes. The rationale of the operation did not commend itself to many members of the British Orthopaedic Association on their visit to Scandinavia just before the war. They felt doubtful whether the symptoms warranted operation, and they thought that if operation was necessary the patella had better be removed. Elsewhere in this issue Mr. C. Gray reports favourably on the results of removal of the patella for this condition. All his nine patients were relieved of symptoms which in many cases were of long standing, and their knees recovered full range and full power.

Excision of the patella has become popular as a method of treating fractures of the patella ever since Brooke[6] demonstrated that patients could return to work sooner after this than after any other operation. Nevertheless some experienced surgeons are unconvinced of the merits of this procedure. The operation is certainly not foolproof, for unless the gap left in the quadriceps apparatus after removal of the patella is cobbled together tightly the patient is unable to extend the knee fully against powerful resistance. In several of Gray's cases recovery was long delayed on account of persistent weakness of the quadriceps.

The long-term effects of removal of the patella on the function of the knee are as yet unknown. The medium-term results are good, for once the quadriceps has regained full power the knee appears to function as well as a normal knee. It would seem that excision of the patella, when properly done, is a justifiable and useful operation, and that it is indicated for those patients with chondromalacia patellae whose symptoms persist in spite of treatment with rest and physiotherapy.

[1] Coleman, H. M., *J. Bone Jt Surg.*, 1948, **30B**, 153.
[2] Duchenne, G. B. A., *Physiologie des mouvements démonstrée à l'aide de l'expérimentation électrique et de l'observation clinique*, 1867. Paris.
[3] Wiberg, G., *Acta chir. scand.*, 1941, **85**, 421.
[4] *J. Bone Jt Surg.*, 1948, **30B**, 158.
[5] Karlson, Stig., *Acta chir. scand.*, 1939, **83**, 347.
[6] *Brit. J. Surg.*, 1937, **24**, 733.

SURGICAL TREATMENT OF HYPERTENSION

Experience of the results of lumbo-dorsal sympathectomy (Smithwick's operation) in cases of essential and malignant hypertension is accumulating in this country. A recent discussion at the International Conference of Physicians helped to clarify the present position.

Though the aetiology of hypertension remains obscure important new observations have been recorded in recent years. The experiments of Goldblatt, Wilson and Pickering, Wilson and Byrom, and others, focused attention on the kidneys; but subsequent histological studies on the kidneys of hypertensive patients—the material being obtained both at biopsy and necropsy—revealed no evidence of renal ischaemia in the earlier stages of the disease. The illuminating work of Trueta and his colleagues, however, has indicated that functional renal cortical ischaemia may develop as a result of the juxta-medullary by-pass coming into operation too readily. Those who react excessively to the cold pressor test of Hines may well develop such a shunt too easily. Again, the hereditary factor recently stressed by Platt might determine the sensitivity of this mechanism or the extent of the by-pass. It is now suggested that the success of sympathectomy may depend upon its shunt-preventing effect. Elsewhere in this issue Dr. Geoffrey Bourne discusses these views. He maintains that the ideal time to perform lumbo-dorsal sympathectomy should be at the end of the functional stage of hypertension, before the development of irreversible changes in the renal juxta-medullary and cortical vessels. Few would advise sympathectomy in cases of mild hypertension without degenerative cardiovascular changes, for the prognosis is then good and incapacity *nil*; yet when these conditions no longer hold good it may be too late. This is the crux of the problem.

Bourne thinks that sedation by means of sodium amytal is as good a test as any for attempting to assess the likely result of sympathectomy. One difficulty in predicting the outcome depends on the fact that after sympathectomy the blood pressure may fall for more than one reason —because normal vasoconstrictor tone in the legs and splanchnic area is eliminated; because spasm of the renal cortical vessels is abolished; or because veno-motor tone in the legs is reduced. Post-operative faintness from postural hypotension is probably due to a reduced cardiac output resulting from collapse of the venous pressure in the erect posture and incomplete filling of the heart. Lowering of the blood pressure brought about in this way would not be beneficial, and a reduction of the renal blood flow might well have a directly adverse effect. More work on this aspect of the subject is needed.

SALICYLATES IN RHEUMATIC FEVER

When D. B. Lees popularized the use of sodium salicylate in the treatment of rheumatic fever he recommended large doses (20 g. or more a day), and advised that it should be combined with twice as much sodium bicarbonate. Since his time, however, the value of salicylates in this disease has been much debated, and his advice has been largely forgotten. The usual mixtures of sodium salicylate contain sodium bicarbonate, but as a rule in the same dose. The belief has grown that while salicylates control the fever and joint pains of acute rheumatism they have no influence on the course of the disease and do not prevent the all-important carditis.

In most hospitals the custom is to administer salicylates in doses sufficient to relieve pain and temperature and to stop them when the first signs of salicylism appear—commonly tinnitus, deafness, or vomiting. However, in 1943 Coburn[1] reopened the whole question by claiming that, if given early and in doses large enough to produce a concentration in the blood of 35 mg. per 100 ml., salicylates have a curative action and will prevent the development of carditis. Coburn advised intravenous administration in order to obtain this concentration rapidly and with certainty. It soon became clear that this method of giving the drug was unnecessarily dangerous, because concentration in the blood as high as that recommended by Coburn can easily be obtained if it is given by mouth. Further, Coburn's views on the efficacy of salicylates given in this way were not confirmed. Smull, Wegria, and Leland[2] investigated what effect the simultaneous administration of sodium bicarbonate had on the salicylate concentration in the blood, and they found that it was decreased. They suggested that this was the reason for the lower incidence of toxic manifestations when alkali was given. Parker[3] confirmed this and showed that the decreased level of salicylates in the blood was due to an increased rate of excretion by the kidneys in the presence of the alkali. More recently, however, it has been pointed out by Peters[4] that while there is some increased renal excretion of salicylates when sodium bicarbonate is administered simultaneously this does not materially affect the blood concentration. He states, as Lees did, that to obtain the full benefit of salicylates they must be given in large doses (at least 15 g. daily), combined with twice as much sodium bicarbonate. He claims that this has a specific detoxicating effect, greatly reducing the symptoms of salicylism despite the large doses given. Furthermore, he believes that salicylates have a curative effect. It is interesting to note that Peters states that he came to his conclusions, which are exactly the same as those of Lees, while unaware of the latter's work or advice.

While there is no doubt about the value of salicylates as analgesics and antipyretics it is plain that their influence on the course of rheumatic fever is still a matter for conjecture and further study. Twenty years ago Derick, Hitchcock, and Swift[5] suggested that salicylates inhibited antibody formation. Perry,[6] using acetyl-salicylic acid in doses of 2–3 g. daily, was unable to demonstrate in volunteers any effect on the antibody response following the injection of typhoid vaccine. More recently Jager and Nickerson[7] have studied the antibody response to typhoid vaccine in a series of patients whose plasma salicylate level was being maintained at from 20–41 mg. per 100 ml. by means of massive doses of the drug. They found that the formation of typhoid H and O antigens was considerably reduced compared with controls, and that other blood changes noted in the controls—leucocytosis, increase in fibrinogen and gamma globulin—were slight or absent in the patients receiving salicylates. These conflicting findings are probably due to differences in dosage of the drug.

1 *Johns Hopk. Hosp. Bull.*, 1943, **73**, 435.
2 *J. Amer. med. Ass.*, 1944, **125**, 1173.
3 *Quart. J. Med.*, n.s., 1947, **16**, 309.
4 *Acta med. scand.*, 1947, **128**, 51.
5 *J. clin. Invest.*, 1927–8, **5**, 427.
6 *J. Path. Bact.*, 1941, **53**, 291.
7 *Amer. J. Med.*, 1947, **3**, 408.

COMPLICATIONS OF MUMPS

Mumps is one of the "nuisance" infectious diseases which has never achieved a serious notoriety in this country. Occurring chiefly in children, the complications are few and of minor importance. Smith,[1] whose experience was among boys around the age of puberty, found it a disease of very wayward infectivity and considered it so mild as not to warrant any attempt at prevention by passive immunization. The recent article in our columns by Lawrence and McGavin[2] is of value in drawing attention to its occasional severity in adults.

Although meningo-encephalitis is the most alarming complication and has great interest to the clinician it is not perhaps the most important. It is rarely fatal and sequelae are uncommon, although it should be noted that they occurred in four of Lawrence and McGavin's cases. Whether mumps is primarily an infection of the central nervous system, as Philibert[3] has argued, is not yet clear, but there is considerable variation in the incidence of meningitis recorded by different workers. Candel[4] found pleocytosis of the cerebrospinal fluid in 30 out of 38 cases. In Lawrence and McGavin's series involvement of the central nervous system could be suspected in 42 out of 235 cases; on the other hand Dermon and Le Hew,[5] dealing with a similar kind of population, recorded one such case out of 129. Holden, Eagles, and Stevens[6] performed routine lumbar puncture on the fourth day of illness and found in 33% of their cases some evidence of meningitis, although the cerebrospinal fluid abnormality was slight in a number of instances. Much depends, obviously, on the care with which the abnormality is looked for, for involvement of the central nervous system would not be suspected in many cases.

Although meningo-encephalitis may be disturbing, the prognosis is almost invariably good. It is more difficult to

1 Smith, R. E., *Guy's Hosp. Rep.*, 1943, **92**, 1.
2 *British Medical Journal*, 1948, **1**, 94.
3 *Progr. méd., Paris*, 1932, 145.
4 *Nav. med. Bull., Wash.*, 1944, **42**, 861.
5 *Amer. J. med. Sci.*, 1944, **208**, 240.
6 *J. Amer. med. Ass.*, 1946, **131**, 382.
7 *New Engl. J. Med.*, 1942, **227**, 277.
8 *Nav. med. Bull., Wash.*, 1944, **42**, 1388.
9 *J. Urol.*, 1945, **54**, 547.
10 *Amer. J. med. Sci.*, 1945, **210**, 661.

be dogmatic about the permanent effects of orchitis, and not the least interesting aspect of Lawrence and McGavin's paper lies in the follow-up of patients who suffered from this complication. They found atrophy in some degree in 43%, a total figure not greatly at variance with those of Wesselhoeft,[7] 55%, and Dermon and Le Hew,[8] 48%. It must be remembered that both testicles are not usually involved, so that lowered fertility rather than complete sterility might be expected. In Lawrence and McGavin's cases only nine showed a severe degree of atrophy, but from the subsequent history it seemed that sexual activity was not impaired. Whether their evidence on this point can be regarded as evidence of fertility is arguable, for of course an atrophic testicle might not affect sexual activity although the sperm was infertile.

The subject has interest at present because of the conscription of young men in this country for military service. An increased incidence of mumps among these men, with its attendant risk of orchitis, might thus be expected. The information required for a proper appraisal of the results of orchitis is the history of the involved patients after marriage, and it would be of great service if someone with the available facilities could study the problem. Decompression operations have been advised by Wesselhoeft[7] and others,[8 9] but even this does not ensure that atrophy will be avoided. Most writers agree that sterility is uncommon, and Lawrence and McGavin's paper would suggest agreement with such a conclusion. The possible value of gamma globulin prepared from mumps convalescent serum, as suggested by Gellis *et al.*,[10] in preventing orchitis is perhaps worth further study.

INCLUSIONS IN THE RED BLOOD CORPUSCLES

Granules within red blood cells have for long excited interest and speculation. Sometimes these granules seem to indicate the presence of parasites, variously classified as *Bartonella, Grahamella, Eperythrozoa,* or *Anaplasma.* Some of these parasitic granules appear in large numbers only when splenectomy has been performed. Other granules in red cells—the well-known Schüffner bodies—are seen when certain species of malarial parasite are present. They are presumably formed by the breakdown of cytoplasmic constituents of the red cells. Nuclear remnants, Howell–Jolly bodies, can be differentiated by the fact that they stain with haematoxylin and with methyl green and also give a positive Feulgen reaction for nucleic acid. Heinz granules are eosinophilic; Isaac's granules[1] appear black in unstained preparations and fail to take up the usual stains. Wenyon and Low in 1914[2] reported that Seidelin's bodies, which are seen in the red cells of young guinea-pigs, stain purplish-blue by Leishman's method, but their significance requires further investigation. Some granular inclusions in red cells are apparently associated with toxins in the body; for example, the basophilic stippling seen in cases of lead poisoning is well known. Mushett and Siegel[3] have recently found that administering massive doses of mepacrine to various animal species causes an anaemia and the occurrence within both red cells and lymphocytes of inclusion bodies staining dark blue with Wright's stain but giving no reaction for iron. Pyridoxin deficiency, according to Wintrobe and his colleagues,[4] also gives rise to bodies within the red cells which stain blue by Wright's stain. In this condition there is excess of iron in the blood (hyperferraemia) and marrow hyperplasia, but no evidence of excessive haemolysis.

These findings contrast with those of Pappenheimer and others[5] in 1945 of curious erythrocytic inclusion bodies in man. Two of the patients were women with haemolytic anaemia of the acquired type; the third patient was a young man with anaemia of undetermined type associated with splenomegaly. Splenectomy was performed in all three cases and it was only after this operation that the inclusions were seen. The bodies were coccoid or less commonly bacillary in form, and stained reddish-purple or purple-blue with Giemsa's method while giving a positive reaction for iron but a negative Feulgen test. The bodies were later found in the reticulo-endothelial cells of the bone marrow, liver, and lymph nodes of the two cases of haemolytic anaemia. In a subsequent search similar bodies were found in the red cells or endothelial cells of the spleen in cases of thrombocytopenic purpura, haemolytic jaundice, sickle-cell anaemia, fatal cases of rheumatic fever, and in four cases of a group of 22 comprising cases of Banti's disease, cirrhosis of the liver, and congestive splenomegaly.

McFadzean and Davis[6] have recently studied the occurrence and nature of these Pappenheimer bodies; their communication is accompanied by excellent photomicrographs and coloured plates. In addition to those in red cells in the peripheral blood the inclusion bodies have been found in monocytes, reticulum cells, and the bone marrow. In the marrow they may be seen in all members of the red-cell series which show evidence of haemoglobin formation but not in early basophil normoblasts or in early erythroblasts. Material giving similar staining reactions was also seen lying free in the marrow as discrete granules of globulate masses. Presumably such material arises from rupture of affected cells. It does not fluoresce when examined by fluorescent microscopy. While cases with acquired idiopathic haemolytic anaemia show after splenectomy a considerable increase in the number of red cells with inclusions in the peripheral blood stream, this is not the case in congenital acholuric jaundice. McFadzean and Davis have failed to find Pappenheimer bodies in the blood of 62 normal people, but they have noted their occurrence in cases of erythroblastosis foetalis, traumatic rupture of the spleen with splenectomy, blackwater fever, and anaemia associated with chronic infection, carcinomata, and chronic nephritis.

The nature of the Pappenheimer bodies is still not known with certainty. It seems unlikely that they are parasites, and their relationship to the siderotic granules described by Grüneberg[7 8] and Doniach *et al.*[9] in mice with a genetic abnormality is still uncertain, although they are possibly fundamentally similar. For the time being all that can be said is that they develop as a result of interference with haemoglobin anabolism.

1 *Anat. Rec.*, 1925, **29**, 299.
2 *J. trop. Med. Hyg.*, 1914, **17**, 369.
3 *Blood*, 1946, **1**, 537.
4 *Johns Hopk. Hosp. Bull.*, 1943, **72**, 1.
5 *Quart. J. Med.*, n.s., 1945, **14**, 75.
6 *Glasg. med. J.*, 1947, **28**, 237.
7 *Nature*, London, 1941, **148**, 114, 469.
8 *J. Genet.*, 1942, **44**, 246.
9 *J. Path. Bact.*, 1943, **55**, 23.

THE EDITOR OF "THE TIMES"

We announce with much regret the death at the age of 57 of Mr. R. M. Barrington-Ward, the Editor of *The Times.* He was the fourth son of the Rev. M. J. Barrington-Ward, D.D., and one of five brothers who were all King's (or Queen's) Scholars of Westminster. His brother, Sir Lancelot Barrington-Ward, F.R.C.S., is Consulting Surgeon to the Hospital for Sick Children, Great Ormond Street.

Mr. Barrington-Ward was on the staff of *The Times* from 1913 to 1914 as one of the Editor's secretaries. During the war of 1914–18 he was awarded the M.C. and the D.S.O. After that war he joined the staff of the *Observer*, on which he served as Assistant Editor for eight years. He rejoined the staff of *The Times* in 1927 and succeeded Mr. Geoffrey Dawson as Editor in 1941.

RHEUMATISM IN JOHN HUNTER'S TIME

HUNTERIAN ORATION

The annual Hunterian Oration was delivered before the Hunterian Society at the Mansion House, London, on Feb. 23 by Dr. W. S. C. Copeman. Although Hunter made no major contribution to our knowledge of rheumatic diseases, Sir Charles Scudamore, writing on rheumatism, said that no more original genius illuminated the horizon.

Dr. Copeman pointed out that the eighteenth century was the age of theorists and system-makers. De Sauvages in his great work *Nosologia Methodica*, published in 1763, made the first real attempt at a systematic classification of diseases; he defined the word "rheumatism" as a generic term for many diseases affecting the bones and muscles and accompanied by pain and disability. The humoral theory of the origin of these diseases lasted well into the eighteenth century, and no aetiological distinction between acute and chronic rheumatism was made except for the "scorbutick" type described by Sydenham, a term which seemed to have been designed by him as a generic one for all cases which he found it difficult to classify otherwise. Lesions of the heart in acute rheumatism were not mentioned until Lettsom reported the result of a necropsy he performed in 1786 on a child aged 6. David Pitcairn (1749–1809) was the first to attribute cardiac disease entirely to acute rheumatism, and William Heberden the elder (1710–1801) was the first to describe and name angina pectoris, which he did in 1768, quoting twenty such cases in his *Commentaries*. The first post-mortem report on a case of rheumatic disease that Dr. Copeman had been able to discover was one by John Hunter himself in his "Account of the dissection of morbid bodies" (No. 54 in the Hunterian MSS.). The case was evidently one of osteoarthritis in an old woman. Hunter found multiple loose bodies in both knee-joints and one in the ankle.

Very little information was available on the incidence of rheumatism in the eighteenth century. A pamphlet on diseases in the Army, published in 1703 by T. D. Reide, surgeon, stated that rheumatism was common among the men in Chatham barracks and in the West Indies, but "was not attended with such severe symptoms as I have seen in our army in America." In the first month of its opening in 1734 St. George's Hospital, out of a total of 65 cases, received 5 with a diagnosis of rheumatism, and one of these patients died. Sir John Pringle, the Army physician, was the first to make specific reference to the possibility of preventing rheumatism when in 1752 he suggested that, as cold appeared to be the cause, extra clothing and blankets should be issued to the troops in winter, also fuel with which to dry their clothes, but not their bodies, seeing that this was better done by exercise.

Methods of Treatment

The object of treatment was to depress any fever and to draw off "acrid substances," which was done by bleeding, purging, vomiting, and locally by blistering. Boerhaave declared that rheumatism "is always cured by bleeding, cooling, and repeated purges, ally'd at night with a narcotic." The same writer, in advocating other measures, suggested that towards the end of the case "dry hot frictions should be tried, together with the use of antiscorbutics." For bleeding, up to a dozen leeches might be used, and for purging the drugs chiefly employed were scammony, senna, and Glauber's salt; ipecacuanha, guaiac, and Jesuit's bark were also prescribed. Colchicum was reintroduced by Stoork, of Vienna, in 1763, but its use remained chiefly in the hands of quacks. Vitamin therapy was perhaps envisaged by Sir R. Blackmore in 1726 when he recommended for scorbutical rheumatism remedies compounded of vegetable juices, "scurvey grass," and water of horse-radish. Excess of wine and spirits was advocated "to burn off the gout," until Heberden in 1768 pointed out the folly of this procedure, and Cadogan later advocated an austerity regime. Towards the end of the century Latham enjoined total abstinence.

Blackmore seemed also to have been the first to advocate water for medicinal drinking purposes. Falconer in 1795 recommended that when any fever had abated cautious immersion in a bath at 85–90° F. for ten to fifteen minutes —never for longer—might be tried, and repeated two or three times a week, with a slight increase of temperature. A curious type of bath treatment was referred to by Latham as being popular on the Continent. This was the marine-acid bath for gouty patients. Exercise on horseback had been advocated by Sydenham, or, if this could not be tolerated, the same effect might be obtained by "riding in a sedan chair." English spas such as Buxton had records which showed them to have been used for the treatment of rheumatic disorders as far back as the sixteenth century. By the end of the eighteenth century most of the leading physicians had adopted some form of "expectant treatment," as it was generally found that patients did as well under this regime as when subjected to the earlier elaborate and exhausting methods.

A vote of thanks to the orator was proposed by Dr. Forestier, of Aix-les-Bains, and seconded by Mr. Mortimer Woolf.

Reports of Societies

FUTURE HOSPITAL SERVICE

A Reply to the Surveys

A meeting of the Epidemiological Section of the Royal Society of Medicine was held on March 1, with Dr. W. S. C. COPEMAN in the chair. Sir ERNEST ROCK CARLING opened a discussion on "The Hospital Service of the Future."

He began by saying that when he criticized the hospital service of the past and present he wanted to make it clear that the defects were due, first and foremost, to a burden too grievous to be borne. Sometimes the difficulty was lack of money, often it was the time-honoured existing system or plurality of systems; in one area it was the rigidity of parochial boundaries, in another it was isolation. Everything he had to say had been known for over a quarter of a century, was stated in the Dawson Report of 1920, and had been restated by responsible bodies in the professional journals.

It was the Surveys instituted by the Ministry of Health to ascertain the facts which put the knowledge on a firm basis. The Surveys were carried out by men of great experience, and quite independently, but the results showed a remarkable degree of similarity. North, south, east, and west, the criticism followed the same general lines. In his view the National Health Service Act, with every feature of which he must not be supposed to be in accord, met the situation in a way calculated to redeem the system and to keep hospital organization in the forefront of progress.

Such system as had existed was a purely haphazard growth. In the great cities the hospital opportunities open to the population were extremely good, and were tending to be better for the lower and lowest-income classes than for those who, though better off, were not by any means in unembarrassed ease. In small towns and rural areas, with some exceptions, there were but meagre arrangements. It was important especially for the Londoner, who was accustomed to think of the famous teaching hospitals, to realize that peripheral voluntary hospitals were severely handicapped, sometimes by their own ambitions. To maintain their prestige they must proclaim their success in providing everything that the advances in the science and art of medicine had suggested, often to the peril of convenient planning. "Almost every urban voluntary general hospital in the country ought to be rebuilt on a new site, from two to ten times the size, on the periphery of the town."

It happened sometimes that healthy rivalry between hospitals led to uneconomic provision of departments for which there were no available specialists, though co-operation, had it superseded rivalry, might well have led to complementary services which would have covered a considerable area satisfactorily. In nearly every town there were small hospitals dealing with special classes of disease, cut off from association with general medicine. There was no justification for such "forlorn spinsters." The more particular the specialization the greater the need for integration.

It would serve no purpose to go into the historic reasons for the existing state of affairs whereby the voluntary hospitals had been fully absorbed in the treatment of short-term illness while long-stay cases had been almost entirely confined to Poor Law institutions. The chronic sick were admitted in many

instances without previous investigation, and the most difficult tasks were handed over to the less competent, who were inadequately supplied with the necessities for their work. In 1944, as a result of the Surveys, it was estimated that nearly 100,000 additional beds were required, and there was still an unspecified but serious shortage of well-trained staff.

Problems of Hospital Provision

What, then, were the problems of hospital provision presented to any government? First, an intensive study of the function of the hospital in the modern community should logically have followed the Surveys. Secondly, organization of the existing accommodation on the most economical plan possible was needed. Thirdly, dispersal and distribution of the available medical talent to the greatest advantage. Fourthly, organization of ancillary services to obtain reasonably uniform standards. Fifthly, training facilities, with grants for every class of individual constituting an integrated hospital personnel. Sixthly, a universal transport system. Lastly, a vast building programme, at present impracticable.

In considering the adequacy and appropriateness of the new Act to improve the hospital service it was necessary to take into account the other measures for national assistance and national insurance, the functions of the Universities Grants Committee, and the implications of the Goodenough recommendations, among other matters.

After touching on other aspects of the problem, Sir Ernest Rock Carling went on to refer to the conception of local management committees controlling all the resources of their area irrespective of their boundaries, and the development of these resources to a pitch of autonomous self-reliance which needed to resort to headquarters only for exceptional specialties. The intelligent layman and strong administrator would look to the medical committee for advice, for ideas and plans and advances. It was for the profession to see that the machinery—which he personally believed to be sound—now put into their hands functioned to full capacity.

There were, however, certain defects in the Act which left open a possibility of trouble. The gulf between voluntary and municipal hospitals had been closed, but the division of authority might promote the development of another cleavage. The major preventive services ought to be intimately associated with the hospitals. Industrial medicine in its limited and wider aspects alike would, if so related, enlarge the horizon of surgeons and physicians in the direction of environmental aetiology. The medical officer of health, with all his experience of community services, should have an entry to general hospital councils. Health centres should be the antennae of hospitals, and between the two there should be unimpeded passage. He pleaded for the most active co-operation in order to avoid any hindrance to progress from the division of authority.

A Possible Cleavage

Dr. T. S. MCINTOSH expressed the opinion that, great as the need for additional beds might be, the replacement of unsatisfactory accommodation was even more urgent. Most important of all was the provision of a sufficient and properly distributed staff. At the present time the number of beds, and perhaps even the quality of beds, though poor in many cases, was better than the quality of staff in a great many parts of the country away from the centres. The thing that had particularly struck some of those who took part in the Surveys was not only the shortage of accommodation, nor the inferior quality of a great deal of it, but the fact that the best use was not being made of existing resources. With almost monotonous regularity the Surveyors made the recommendation that there ought to be pooling of resources. Where there were two authorities, as there were in some places, namely, the regional hospital board and the board of the teaching hospital, this should not be allowed to interfere with a complete and satisfactory pooling. He saw some danger of a gap being created between teaching hospitals and the hospitals of the region, but given good will and a desire to meet the needs of the community there was no reason why it should appear.

On the subject of the general practitioner and his connexion with the hospital system, it was a difficult but important task to bring him into close relationship with the hospital service. The treatment of patients ought to be in every case a partnership between the general practitioner and the appropriate specialist.

General Practitioner Hospitals

Prof. J. A. NIXON said that he agreed with practically everything Sir Ernest Rock Carling had said about what the Surveyors—of whom he was one—found in the hospitals, but he also found much to praise. In particular he praised the emergency public health laboratories which were attached to hospitals. He had in mind one of the most shocking of the workhouse infirmaries which raised itself into a most efficient E.M.S. hospital largely as a result of having a first-class pathologist who was almost a resident and who was also clinician. This miserable institution, which he would have bombed to atoms, had become a very efficient hospital.

Again, he had been impressed by the work of some of the general practitioner hospitals in the South Wales area. Small district hospitals in those mining areas were doing their work extremely well. This new Act, he believed, was admirable in the opportunities it offered for instruction at the periphery through specialists planted out on the edges of regions. "Do you want to turn me into a travelling circus?" one of them had said to him. But that was exactly what was wanted—a travelling circus pitched on a fair-ground in the neighbourhood of Penzance or out in Pembroke—and that did lie within the framework of the Act.

A defect in the Act was that it opened up the possibility of a gap between the teaching hospital and the regional hospital, though he had not the slightest doubt that any sensible provincial university teaching hospital would throw itself holus-bolus into the regional work. The regional hospital must be staffed with specialists just as good as those of the teaching hospital. The function of the latter was undergraduate teaching, but the function of the former would have to be post-graduate teaching. He did not know how far that cleavage could be foreseen and avoided. Prof. Nixon concluded by pleading that all nurse-training hospitals in the big towns should be attached to the university, not for educational but for social purposes, in order that all nurses might be given the social facilities of a university.

Cautions and Suggestions

Sir CLAUDE FRANKAU took a view somewhat different from the previous speaker concerning general practitioner hospitals. In the area which he surveyed there were a number of 50- or 100-bed hospitals entirely staffed by general practitioners. They were asked whether they had a consulting staff, and they would produce a list of distinguished people; but apparently these people came only when asked, and major operations were undertaken without reference to them.

Dr. CHARLES MAITLAND spoke of the shortage of nurses, which was not a phenomenon peculiar to this country. It was to be found also in North America and Scandinavia. It was a peculiarity apparently of the modern so-called democracy that there should be shortages of this sort. He also asked the question, "What is a hospital?" The average individual would say that it was a place to which sick people were admitted. He thought the emphasis should be increasingly on treatment and that admittance or residence should be a secondary matter. The medical superintendent of one large county hospital had declared it to be "an out-patient department supported by beds." They might find that if, together with the out-patient department, they put aside beds specifically for the investigation of patients they would get a quicker turnover. Perhaps the aim might be to have fewer beds and better treatment, and he believed this could be done without inhumanity.

Sir WELDON DALRYMPLE-CHAMPNEYS mentioned the danger of the "sausage machine." It was always possible to fall into the habit of saying, "This is a patient with such-and-such a disease. We will now put him through the routine." It was to avoid such a performance that the general practitioner scheme was so important. Someone had spoken about the co-operation of the general practitioner and the specialist. Such co-operation was, of course, obviously desirable, but it was the general practitioner who should be in charge of the patient, not so much for his own sake as for the patient's,

because he was the one person who could protect the patient against mishandling by the specialist. With him in charge there would be some continuity of personal touch in the matter. The patient would be far happier to see his own doctor and to be able to ask him, "Do you think it is all right?" and the general practitioner with his knowledge of the case and of the patient's personality and background would be able to reassure him.

In some further discussion Dr. HORACE JOULES said that Scotland was ahead of the rest of Great Britain in that in Scotland the teaching hospital was included within the region. If this were not done in England it would place the regional hospitals at a distinct disadvantage from the start. Dr. ROGERS (Liverpool) pleaded for greater attention to man-management—another name for administration. Dr. URSULA BLACKWELL suggested as a means of alleviating the nursing problem that the mother or wife of the patient should be brought into hospital for certain nursing duties. Dr. E. L. STURDEE pointed out the danger arising from divided administration. He knew of one hospital, for example, where they had an excellent arrangement of ambulance service whereby the patient was brought in at a certain particular time for out-patient treatment. But in future the hospital would be under one authority and the ambulance service under another. He also referred to the opportunities for undergraduate teaching in the municipal hospitals.

Dr. COPEMAN from the chair said that a tribute should be paid to the foresight of Lord Dawson's Committee in 1920 which had initiated so many of these ideas. He felt that sufficient credit had never been given to its prescience in the matter. Sir Ernest Rock Carling had pointed out that all necessary specialties must be decentralized within the regions, and he had been very pleased to hear him say that the more specialized the subject the more reason there was to make sure that it remained within the broad stream of general medicine. He realized the importance of this in the specialty in which he was interested—the provision of treatment for chronic rheumatic diseases. Too often these patients were labelled chronic without having been brought within the scope of general medicine.

Sir ERNEST ROCK CARLING, in reply, said that several had spoken about the possibility of severance between the teaching and the regional hospital. He himself believed that within five years England would have followed the example of Scotland. It would be impossible to keep the two classes of hospitals apart, and there were already signs in the provinces—not so much in London—that they could not be kept apart from one another.

He agreed with Sir Claude Frankau that complacency regarding the general practitioner surgeon must not be allowed to continue. His insulation from criticism might lead to work which was very unsatisfactory. Even the most accomplished specialist could do his best work only in his own unit. He thought that the surgeon who had great skill and found himself in a small hospital in a Welsh valley or anywhere else ought to be given a bigger field in which to exercise his talents. He agreed that the district nurse ought to be brought more into contact with the hospital. At present she felt isolated, but she could save the hospital a considerable amount of work.

CLINICAL PATHOLOGY IN RENAL DISEASE

SECOND LETTSOMIAN LECTURE

In his second Lettsomian Lecture, delivered before the Medical Society of London on Feb. 23, Dr. CUTHBERT E. DUKES considered the pathology of essential haematuria and of renal tuberculosis. In each of these diseases, he said, the urine showed an abnormality which became the starting-point for further investigations. He purposed to show the sort of contribution the clinical pathologist could make to the elucidation of these problems.

Essential Haematuria

In most cases of renal haematuria the lesion responsible for the bleeding could be discovered fairly easily, but cases occurred from time to time in which all tests failed to reveal any pathological explanation for the continued presence of red blood corpuscles in the urine. Painless bleeding from the kidney might occur in chronic Bright's disease; it might be the first indication of a tumour in the kidney or renal pelvis; occasionally in renal tuberculosis a sudden haemorrhage might precede all other symptoms; and sometimes a calculus firmly fixed in the renal pelvis might cause painless haematuria. Re-examination after a period of observation generally settled the question, but many examinations and consultations might be necessary.

The pathologist's first duty was to make sure that the urine did contain blood, and it was useful to make an approximate estimate of the blood that was being lost. When blood oozed slowly into the urine a daily leakage of 3 to 5 ml. would keep the urine constantly red, and much less than this would give it a smoky appearance. The benzidine test was still positive when only 0.25 ml. of blood was mixed with a 24-hour sample.

The urine should then be examined microscopically, special search being made for tubercle bacilli. If this was negative a complete blood count should be carried out to see whether any anaemia had developed and to exclude any blood disorder. Cases of renal haematuria due to blood disorders were relatively rare and easily recognized. In most cases of unexplained renal haematuria the blood count was normal except perhaps for a slight secondary anaemia. The diagnosis of "essential haematuria" was eventually reached by a process of exclusion. The term was an unsatisfactory one, and should never be used to an intelligent patient. This diagnosis was resorted to somewhat apologetically by physicians to describe persistent unexplained haematuria in an otherwise healthy person. It was a clinical diagnosis which in the past was used too indiscriminately and therefore fell into disrepute. Hale-White advised that the name should be reserved for bleeding from the kidney in which no evidence of disease could be found either by naked eye or microscopical examination, and suggested that in these patients a poison was formed which, when it reached the kidney, damaged the blood vessels and allowed the blood to escape.

Although there might be such cases of haematuria without discoverable cause, they constituted only a minority of the cases in the literature. More often, when nephrectomy had been performed for persistent unexplained haematuria, examination of the excised kidney revealed an angioma or a capillary naevus of the renal papillae, a small submucous haemorrhage in the renal pelvis, a varicosity of veins, or some unsuspected tuberculous lesion. These reported cases might not be a fair sample, because pathologists who found something were more likely to publish their cases than those who found nothing.

No one was likely to have had an extensive experience of kidneys removed for unexplained haematuria. His own was limited to nine cases, and had convinced him that a demonstrable lesion existed in cases of persistent unilateral haematuria, regarded clinically as "essential haematuria," but that the nature of the lesion varied from case to case. Angioma of the renal papillae was one of the commonest causes. The term was used to describe a tumour-like network of the papillary blood vessels, but there was no proof that the lesion was a neoplasm or even a vascular malformation. His own view was that the lesion was probably not neoplastic but due to vascular reparative tissue secondary to trauma or infection. However, the term "angioma" had long been used and was often applied to similar doubtful lesions in other parts of the body.

In some of the kidneys he had examined the bleeding seemed to be derived from comparatively trivial lesions which, had their existence been known, might have been disregarded. To distinguish these from cases in which haematuria was a symptom of serious disease was always difficult. Sometimes the bleeding ceased as abruptly and unaccountably as it began, and it seemed to him that it was only in such cases that the diagnosis of essential haematuria could be accepted with confidence. A great deal more had to be learned about the pathology, diagnosis, and treatment of the condition.

Renal Tuberculosis

Dr. Dukes said that he approached this subject with diffidence, but cases of uncertain character were often met with in which aid from the laboratory was welcome. The discovery of tubercle bacilli in the urine was always proof of the existence of a tuberculous lesion somewhere in the genito-urinary tract. Tubercle bacilli could not be excreted by a healthy

kidney. It would, of course, be an inestimable advantage if it were possible from examination of the urine alone to foretell not only the existence but also the extent of the disease in the kidney. This was not possible. But in some cases analysis of the urine might help to a greater degree than was usually supposed in deciding whether the renal lesion was large or small, open or closed, or whether the patient should be regarded as a medical or a surgical case.

Of the various tests, the culture test was more delicate than the stained-film test. It might reveal tubercle bacilli when the renal lesion was closed, and was sometimes positive before the urine contained either blood or pus. The culture method was specially useful for the exclusion of tuberculosis. The guinea-pig test had come to be regarded as the final court of appeal in all doubtful cases. There were occasions when it was indispensable, but it was often resorted to unnecessarily. In a case of advanced renal tuberculosis with cavities and open communication with the renal pelvis the tubercle bacillus could generally be found in stained films and was usually accompanied by pus and sometimes by blood cells. If the tuberculous lesion was imbedded in the substance of the kidney and had not broken down, then tubercle bacilli could be excreted only intermittently in the urine and in relatively small numbers, so that they were unlikely to be found except on culture or in guinea-pig tests. Such tests, repeated, were the only means of proving the existence of lesions in the kidney not accompanied by any urinary symptoms.

Looking back on a long experience of the examination of tuberculous kidneys he was struck by the bewildering lesions revealed when these organs were examined. In most nephrectomy cases the tuberculous lesions were obvious. In others at first glance the kidney might look almost normal and only on section was the tuberculous lesion displayed. The lesions observed in the tuberculous kidney were the resultant of two opposing forces acting for a long time, one tending towards destruction and the other towards repair. The extent to which natural healing was possible in renal tuberculosis had been the subject of much argument in the past. There was, of course, no possibility of natural cure in the advanced tuberculous lesions with which the urological surgeon was familiar, but there was plenty of evidence that at an earlier stage of development the disease might heal spontaneously in the kidney as it did in other organs.

He had been struck by the different meaning given by different writers to the word "cure." Most commonly the word was used to describe a clinical cure—relief from urinary symptoms and the disappearance of pus and tubercle bacilli from the urine—but this might indicate only that the disease was in a negative or latent phase. To be certain that a clinical cure was complete required a long period of observation. He preferred to use the word "cure" to describe the process of natural healing in a tuberculous lesion, leading to complete restoration of normal renal function.

The lecturer proceeded to give what he called a bird's-eye view of the pathological process. Not all cases of renal tuberculosis ran exactly the same course, but the closer one looked the deeper were the resemblances and the more superficial the differences. He described four stages of renal tuberculosis:

First stage.—Haemic emboli of tubercle bacilli causing bilateral multiple microscopic lesions.

Second stage.—One or more of the tubercles developing into visible lesions, others having disappeared. Tubercle bacilli occasionally present in the urine.

Third stage.—Discharge of tubercle bacilli down the renal tubules, leading to tuberculous ulcer at the apex of the papillae. Tubercle bacilli now constantly present in urine.

Fourth stage.—Tuberculous cavity communicating with the renal pelvis. Lesions appearing in the ureter and bladder. No hope of natural cure. Nephrectomy indicated.

All this was, of course, a continuous process. Once the lesion had broken down and discharged the symptoms began. So one reached the paradoxical conclusion that natural or spontaneous healing could only be expected in those tuberculous lesions of the kidney which had not yet caused any urinary symptoms. In these complex subjects clinical pathology could perhaps offer little more than the light of a flickering candle, but, as a Chinese proverb had it, "It is better to light the candle than to curse the darkness."

Correspondence

National Health Service

SIR,—May I, as a Labour Member of Parliament who happens also to be a doctor, be permitted to commit a trespass to put the point of view of those of us who support the Government over the National Health Service?

The results of the plebiscite have made it clear that the great majority of doctors do not like the Act in its present form. They have not, however, made it plain that there is an equal degree of unanimity about which bits of the Act are objected to. In coming to their final conclusions there are certain points which emerged in the House of Commons debate on Feb. 9 which every doctor should bear in mind:

1. The Conservative and Liberal Parties, no less than the Labour Party, accept the decision of Parliament over the National Health Service Act. If the B.M.A. wishes to alter the Act, its duty, as a group of good constitutional democratic reformers, is to try to persuade public opinion of the wisdom of its case, and to gather a sufficiency of Parliamentary support to get the law altered. Those who object to the laws Parliament has made in the past have followed this course throughout history; and in the long run, where their case has been good, they have been successful. Any attempt to frustrate the law by extra-parliamentary means is bound to end in failure. Without committing myself, I must remind my colleagues of the lesson the Labour movement learnt in the General Strike twenty-two years ago; and even that was not directed against an Act of Parliament.

2. On the subject of *sale and purchase of practices* and *appeal to the high court*, Conservatives and Liberals support the Government. To be quite fair, Mr. Butler, who was leading for the Conservatives, suggested that appeal from the tribunal to the Minister should be dropped, thus making the tribunal the final arbiter. It is therefore quite useless to press the Government to abandon its decision. Even if they were persuaded to do so against their better judgment, of which there is no chance, they would be unable to carry such amendments against a combination of all political parties. Let me add my own view that the real freedom of the individual doctor will be greater with the Act's proposals than it would be if the B.M.A. amendments were accepted.

3. On the subject of *negative direction* (so-called), support for the B.M.A. view from the Conservatives is lukewarm, while Liberals and Labour are united against; and the Liberals regard themselves as keen champions of individual freedom. To the ordinary Labour member of Parliament, concerned primarily with the needs of his constituents for more doctors, the case for non-admittance of extra practitioners in the public service to over-doctored areas, as long as other areas are under-doctored, seems overwhelming. Particularly is this so when Control of Engagement Orders (far harder in their operation) affect mainly Labour's own supporters, and are accepted in the national interest almost without complaint.

I pointed out in the debate that, once under-doctored areas have ceased to exist, the need for even this small measure of restriction will also have gone. Then is the time to press for amendment of the law. Then I certainly, and, I suspect, all my colleagues on the Labour benches, would be only too pleased to see it go.

4. On the subject of *basic salary plus capitation-fee payment*, the profession's objection, as I see it, is not to the proposal itself but to what it may become. Any Government, at any time in the future, can alter a decision arrived at now, whether embodied in regulation or Act of Parliament. So embodiment of the non-wholetime salary principle in an amending Act would give no protection whatsoever against a Government determined to make the alteration.

There are only two safeguards, which I can think of, which will help the profession. The first is a clear declaration of the present Government's intention. The second is to make a success of the alternative to salaried service. The Government has now repeatedly declared it has no intention of introducing

a salaried service. The Labour Party has accepted the Act in this respect as in others, though it departs considerably from our original policy (and is a great improvement on it). There is nothing inherently unsocialist in payment by capitation fee. And there are great advantages in the combination of capitation fee and basic salary for at any rate a large number of general practitioners. We all want to avoid bureaucracy; two levels of capitation fee, one for doctors with basic salary and another for those without, would increase greatly the difficulties of administration. So I suggest the simple idea that those doctors who do not want it should have the basic salary paid into their superannuation fund. There may be other, and simpler, solutions, but surely this is a matter for real discussion and negotiation.

So much for the facts of the case, as I see them. Unfortunately personal issues have been allowed to cloud these facts. It is difficult not to spring to the defence of a friend, even a bellicose friend, when one thinks he is being unfairly attacked. On this occasion, however, he can look after himself without any assistance. All I want to say is this. I watched the Minister of Health persuade our Labour Party to accept decision after decision on the National Health Service which turned our ideas upside-down. But for him, we might have got all the hospitals under the Local Authorities. But for him, there might have been no private practice for all general practitioners, and no private wards in the hospitals. But for him, there might have been no tribunal between the executive councils and the Minister, and no participation of doctors in the executive side of the Service. And, strangely enough, but for him we might well have had a whole-time salaried service. He did not persuade us against our better judgment, but convinced us he was right—as indeed he was. It is just because he is so vigorous a personality that he was able to put these ideas over. If now his vigour is showing in another direction, it is only fair to add that so also is that of his opponents. In any reasonable attempt to find a solution and make a success of the Health Service, he will play fair; in battle, he will neither give nor ask for quarter.

If the B.M.A. decides to continue the fight, the public will be gravely injured, the chance to start the Health Service with real co-operation and good will will be lost, and the ultimate defeat of the B.M.A. is certain. I believe this would be a bad thing for the medical profession. If its main negotiating body is discredited now, it may be many years before it can regain its rightful position. But for the public, defeat of the B.M.A. is certainly preferable to capitulation of Government and Parliament to the B.M.A.

I would ask every doctor to think over carefully the issues on which he may be called to fight. Are sale and purchase, appeal to the high court, and so-called negative direction causes worthy of battle? There is everything to be said for an idealism which is ready to make personal sacrifices. But idealism is something too valuable to waste on a bad cause. On the other side, the Act offers the profession greater chances of service than ever before; it offers terms which are generous, and, I believe, a fuller freedom than in the past; and to the people it offers every asset that medicine has to give, with material capacity as the only limitation.

As one who has no personal animosity to the B.M.A., and a deep belief in the future of our profession, I want to give a word of advice:

1. Drop the demand for the reversal of the law. You may be sure of amending Acts later if they are needed; they always follow all big Acts of Parliament when difficulties show up in practice.

2. Approach the Minister again on the subject of basic salary, but this time with constructive proposals.

3. Go all out for the really useful guarantees of freedom—full rights to publish what you like, regular public advertisement of the over-doctored areas so that everyone knows where they stand, and public advertisement of all vacancies in general or hospital practice.

4. Have a constructive look at the problem of partnerships in the new set-up. I have a suspicion that it might be a good thing to wind up cash partnerships, and now would be the time to fix up compensation problems. I believe the partnership of the future may be a sharing of work rather than a sharing of money. But, in any event, there is nothing here which cannot be ironed out round a table.

5. Finally, let me emphasize that the next move is with you. It is for you to declare war or to make a gesture of peace. If you declare war, you will lose. If you make a gesture of peace, you can yet find, in spite of what has passed, the spirit of good will. With such a gesture, if it be genuine, you can gain the sympathy not only of us in the Labour movement, but of the public at large. Labour people are just as keen on liberty as you are. They do not want a servile tribe of doctors, but a strong free profession with whom they can join in the battle for health.—I am, etc.,

House of Commons. STEPHEN TAYLOR.

Solidarity of Profession

SIR,—Now that the result of the plebiscite is known the Representative Body is to decide what action it will take in advising the profession. It is imperative therefore that every member of the Representative Body should think hard on the value of the plebiscite as a guide to making his decision. He is certainly armed with a mandate to advise rejection of service under the Act if the results of the plebiscite are read at their face value, but can we be sure that the interpretation of the figures is as simple as the enthusiasts would have us believe? How far do the figures reflect the real opinions and, what is still more important, the intention of the voters? Question A was expressed in such a form that scarcely a single doctor—perhaps not even Mr. Bevan himself—could have answered "Yes" without mental reservations.

No one can approve the whole Act in its present form because it is a compromise between conflicting opinions, and therefore the B.M.A. might have assumed around 56,000 "Noes" without troubling to ask the question. The critical question was the third. It was asked in an attempt to measure the solidarity of the profession, in view of the experience of 1911–12. I believe that this question was answered by a large number under a mistaken sense of loyalty to the more vocal and senior members of their Divisions, hospitals, and other corporate bodies, and in some cases under a moral duress. The large number pledging themselves to refuse service under Question C have to take no action yet, but the earnest hope of the majority who put "Yes" to this question was that during the four months before "going over the top" into financial disaster some face-saving concessions will be made which will release them from their bond. Perhaps the figures of answers to Question C would be very different if it were to be asked on July 4.

The question has been put at a time when the profession has been goaded into a state of emotion, heat, and anger, and I submit that the majority is quite worthless as an indication of what even a substantial number of doctors will be ready to do on July 5. When we take into account the general political colour of the profession, opposed for various reasons to the present Government, and the increasing efforts to substitute an emotional dislike of the personality of the Minister for measured discussion of the points at issue, it is clear that the majority figures of the plebiscite represent not an opinion of the Act but the strong feeling against Mr. Bevan personally as Minister of Health. This view is supported by the results of the voting by those employed in public service, though you, Sir, claim that this vote is very significant as a criticism of the Act. But those employed in public service, such as the medical officers of health, have previously approved a National Health Service in the days of the far less acceptable first White Paper. I suggest that the *volte-face* of this group is due less to consideration of the Act on its merits than to active disapproval of Mr. Bevan as Minister.

Now is the time for wisdom, vision, and sense of proportion; not for emotion, heat, battle-cries, and the metaphors of war. We do not want mutual abuse whether it be the "raucous voice" epithet from the floor of the House or acid comments on the Minister in the columns of the *Journal*. There is no place now for "fighting speeches" and turgid letters to the medical press. We need a cold re-examination of the points of dispute and how far they really matter to the profession as a whole or to each individual doctor. It will need courage on the part of the leaders of the B.M.A., for they have manœuvred themselves into a difficult and responsible position.

Always the curse of a situation of impasse is the pride which must have its face saved. Gradually this becomes the major consideration, suffocating calm discussions of points of disagreement. If the B.M.A. attempts to lead the profession into conflict on July 5 by continued refusal to accept the Minister's offer to re-examine the four unacceptable provisions of the Act it must fail because no sectional resistance can prevail against the wish of the community, but if, on the other hand, it reconsiders the value of the plebiscite as a guide to action, if it measures its tremendous responsibility and is inspired by courage and wisdom, the situation can be saved to the great relief of the mass of doctors.—I am, etc.,

London, W.1. ALECK BOURNE.

The Best Medical Service?

SIR,—By Order-in-Council the bureaucratic totalitarian National Health Service machine is to start on July 5. The Minister has the effrontery to call this machine the best medical service in the world. The number of panel and hospital patients will be doubled. There are no beds and no single rooms. Voluntary hospitals have long waiting-lists. There are insufficient nurses, ward maids, cleaners, technicians, and medical staff. Patients will have to queue up to queue to obtain a registration number when they cease to become individuals. After sitting on a hard bench in a crowded waiting-hall for an hour or so they will see a doctor for a few minutes. They will not be able to see the doctor they want and they will be lucky to see the same doctor twice. To quote a famous comedian, the patient will not be able to have the disease she wants. The doctors will be blamed and become the scapegoats for this chaos, which will be much worse than the housing programme.

The National Health Service is to cost £152 million per annum; only £32 million, or 10d. per head, is allocated from the National Insurance. The remaining £120 million comes from taxation. Moreover, the contributions, subscriptions, donations, etc., to the voluntary hospitals throughout the country amount to more than £100 million per annum. These will disappear. The people do not know that this is the sort of medical service they are going to get or how much it will cost them except that they will have to contribute about 4s. 9d. per week for each person. Patients are not interested in basic salaries, the buying and selling of practices, and the right of dismissal, but they are interested in the type of medical service which will be forced on them. The people are also interested in an ideal plan for a national health service which the B.M.A. has advocated. This is the information which should be put over to the Press and public at frequent intervals.—I am, etc.,

London, W.1. E. D. D. DAVIS.

Criticism from Holland

SIR,—With great interest I followed your articles about the Health Service Act. As a Dutchman I certainly have to keep far from any struggle between the British doctors and their Government. But when heavy rains are pouring down in Britain we Dutchmen see dark clouds on our horizon. And here are the highest principles of the medical profession at stake. You said so well in your leading article, "Why Be Fearful?" (Jan. 17, p. 104), "They work hard—probably harder and certainly for longer hours than any other section of the community."

Now it is a curious fact that many people take freedom to discuss the amount of money that a doctor might earn by this hard work and constantly under great strain. I never noticed that the same procedure is applied to solicitors, barristers, bankers, manufacturers, etc. Still more painful is the fact that a struggle for the freedom of the medical profession is sometimes looked upon as only a struggle for more money. I am sure that the great majority of the British doctors if they had to choose between higher payment as a State officer and less payment as a free man would vote for the latter. To be totally ruined by the mere fact that one wants to be free is another question.

Now, why has the medical profession to be free? Once a State medical organization is in full action, the State will be able by force of the purse to compel the doctors to many things which they regard as not fit to the ethics of their profession. Such things will certainly threaten, as the highest authority in a State organization will not be in the hands of medical men, but in the hands of political groups which are in the possession of State power. The State once on its way to organize will never stop again. So frightful disorganization will be in the end. The medical profession will be more and more impersonal. The doctor will work for the State and not for his patients.

Now, how will a doctor find strength and energy for the daily heavy work in a great practice when he nowhere finds an adequate stimulus? This stimulus is certainly not the question, the more I work, the more money I make. It is the satisfaction that though a lot of trouble comes to the man who dedicates himself to the medical profession, it is the happiness of a hard but free life that makes it possible not to mind the deceptions, the irritations, the heavy strain of every doctor's day, that makes it possible to see, above all, the glory of the "Nobile Officium," which does not mean State office.—I am, etc.,

Amsterdam. C. LANDHEER.

Amend the Act

SIR,—Surely Mr. Bevan must be perturbed by the result of the plebiscite. Supposing the Act were amended to suit the doctors, who would really suffer? Certainly not the patients, and certainly not the economic position of the country. Mr. Bevan, however, might feel frustrated. Mr. Bevan cannot be expected to climb down; he is determined to have the Act as it stands, and only the loyalty of the doctors can prevent him from gaining the desires of his heart. From now on we must expect a furious onslaught on our determination. The people will again hear of us striking at the roots of democracy.

The Cabinet's plan to peg wages met with strong disapproval of certain bodies, yet not a word was spoken about these bodies, although to oppose such a plan must have been very disloyal to the country. We lately have read of a number of strikes at a time when production is so important. Yet it seems that certain strikes get encouragement.

There are a few members of the medical profession who approve of the Health Act as it stands; surely these men are dangerous. They will tell us that we cannot win, so why "kick against the pricks"? They will say, "Look at the doctors in 1911, when they joined the National Health Insurance scheme although they disapproved of it so stongly." The faint heart will listen to such talk and might start a landslide. Surely some move must be made soon by the B.M.A. If we doctors cannot get this Act amended we deserve to have it as it stands, and we will be doing a great disservice to generations of doctors who will receive our inheritance.—I am, etc.,

Trimdon Station, Co. Durham. ALBERT MILLER.

Compromise by Amendment

SIR,—May one with no axe to grind but who is very anxious to see a satisfactory solution by some amendment of the Act put forth a few ideas?

Appeal.—As a former chairman for three years of a Pensions Tribunal appointed by the Lord Chancellor, we adjudicated on hundreds of cases. Appeals against our decisions were *nil*. A medical man brought before a tribunal—two being doctors not connected in any way with the Ministry, and a barrister as chairman—would not I think care to risk his money in an expensive lawsuit when the case is given against him.

Sale of Practices.—We know a lot of untruths have been published on this point, but a great number of the public believe what has been said. The vendor should have the right to sell to a purchaser chosen by him at the 1938+16% figure or the last financial year's income figure, the money being found by the State and paid over without waiting, after completion—purchaser to repay gradually.

Basic Salary.—Paid only to those with less than 1,000 on their lists; to be repaid gradually as the numbers increase.

Direction.—Conditions are much the same either way. More doctors apply for a practice than there are for sale. A man, unless he squats, cannot go and live where he would prefer. Executive Councils should have the power to increase in some way the remuneration where it is difficult to get applications to practise.

Assistants.—Single-handed practices of 3,000 and over on the list should be only allowed to take more patients if they employ an assistant—suitable pay arranged according to numbers on the list, partly by the State.

Sale of Doctors' Houses.—To try and prevent a doctor or his widow obtaining the value of his house sold at public auction to the new man is making it most likely that the auctioneer has orders on no account to sell to the newcomer. Under these conditions he is without a house or place to practise and loses a valuable part of the goodwill which goes with the house.

The Insurance Act as we know it has worked on the whole smoothly. After twenty-two years' experience I cannot remember any disagreement or disagreeable orders.—I am, etc.,

Middleton Stoney, Oxon. J. HOLMES.

Considered Planning

SIR,—The need for an improved medical service is generally acknowledged, and I am as anxious as any that such a scheme should be introduced as soon as possible. However, having followed the discussions in the medical journals and the press, it is hard to escape the conclusion that the medical profession is being asked to sacrifice present freedom for a nebulous future. Wise decision in the matter is made more difficult because there is very great financial pressure to accept by a certain date, while at the same time the terms of service and conditions of work are very uncertain. Not to accept may mean financial ruin; to accept may mean serious loss of income, not to mention inferior conditions of life and quality of service. At the same time one cannot avoid the impression that haste to bring in the new Service is due largely to exploitation of health for political motives.

As is well known, there is an acute shortage of nurses; 50,000 beds are closed already, and under the new Service vastly greater hospital accommodation will be needed. There is an acute manpower shortage, and lack of personnel for the health centres, which are not yet built. The country is in the middle of a life-and-death struggle for economic survival, and the equipment needed for the Service is lacking. There are many such factors. I do not wish to appear defeatist, but realistic. In the next five years will the Service provide anything materially better than the facilities already provided? Why the rush to apply rubber stamps? There is time for considered planning and evolution. Work can be commenced in many directions and the medical profession will fit into an evolving plan. What is the need so abruptly to control the profession?

If National Health Insurance trebled the number of items of service, much the same may be expected in the present instance. One of the common criticisms of the G.P. is that he is too busy to do thorough work. A tremendous additional burden is now to be placed upon him with no materially increased facilities.

A disgruntled medical service will be facing demands which they cannot fulfil, and the people may suffer not only economic hardship, but deterioration in the quality of service. There has been an unfortunate emphasis on personalities, and much has been said from emotion rather than reason. The position, however, is now much clearer than before, and it is clear that our profession is being asked to sign away freedom with unnecessary precipitation, when matters of principle are being denied and points vital to individual futures are obscure.

In these circumstances it would appear a duty to oppose the Minister with a firm "No," at the same time avoiding negation and seeking the positive, by every means in our power helping to develop a sound basis for a national health service which shall promote the health of the nation.

The Minister's demand to sign on the dotted line by July 5 or . . . is for the reasons (financial) given above tantamount to blackmail. Would it be unethical (or futile) to suggest that practitioners should all sign, under protest, in self-defence, and announce that from the appointed day they would go solidly on strike in the best trade union tradition unless in the interval the obscure points are made clear and their just demands are met?—I am, etc.,

Reading. M. E. M. HERFORD.

An Unworkable Act

SIR,—As a general practitioner one of my chief objections to the new Health Act in its present form is that we are being asked and expected to give to the public a service which is quite impossible at the present time. We know the difficulties hospitals are having—long waiting lists, serious shortage of nurses and domestic help, overworked honorary staffs. General practitioners also as a whole are fully employed. The public will be compelled to contribute quite a substantial sum every week for health services, and are being led to believe that all the resources of medicine will be at their disposal for the asking. They will naturally endeavour to get a good return for their money and will not be backward in coming forward. Result—overcrowded surgeries, incessant telephone calls, our lives a little hell, our work not what it should be.

It is now the duty of our representatives to put these facts before the Government and to say firmly that we cannot possibly at present give the service required by the Act. They should also state what we are able and prepared to give. A service that would appeal to me would be: (1) to extend the present N.H.I. to include the family of the insured; (2) the rest of the population to contribute a weekly sum sufficient to provide a fund to (*a*) materially help to build, equip, and maintain hospitals, and (*b*) adequately pay the honorary staffs. In return they should be entitled to hospital treatment whenever necessary free of further payment. The amount and nature of such treatment to be specified; it should be comprehensive but not extravagant.

The public are not interested in the sale of practices and so forth, but they could surely be made to understand that there are not enough hospitals or doctors to give the service the Act seems to promise them. They could be made to see that the Act must be modified and also I think that at all costs we must retain our freedom. Unless the Act can be modified I would rather keep out of it, and I do not envy the lot of those who join and attempt the impossible. Theirs a life of toil providing a paradise for the "malade imaginaire."—I am, etc.,

Melksham, Wilts. I. C. KEIR.

An Alternative Wanted

SIR,—My question may have been put by others, but I have not seen an answer, although I follow fairly closely the correspondence in the *B.M.J.* Doctors have received a separate copy, and a full report of the proposed National Health Service has been published in the *B.M.J.* Can the British Medical Association publish in a similar manner their alternative health service scheme in detail or circularize doctors with copies of the amended scheme that they propose—in every detail? Can this be done at an early date so that those concerned can decide before the appointed day how they are going to earn a living for themselves and their dependants when the appointed day arrives?—I am, etc.,

Moreton, Cheshire. MARGARET ROUND.

Alternative Plan

SIR,—We have shown by the ballot that in the opinion of all sections of the profession there is something very wrong with the present Act. In order to hold our prestige it is essential that the B.M.A. quickly publish a clear and concise alternative plan. In order to do this successfully it is equally essential that the wording of this alternative plan be drawn up with the aid of the best legal opinion available. It would greatly add to the influence of such a plan if it were signed by (1) one of the leading members of each section of the medical profession; (2) several leading legal experts; (3) several prospective patients drawn from all sections of the community; (4) several administrators of hospital, panel boards, and regional boards; (5) several members of the nursing profession.

To remove the present suspense in the public mind the B.M.A. should now state over the radio and in the Press that such a plan is in the course of preparation and will be published on a definite date.—I am, etc.,

SERVICE PRACTITIONER.

Alternative Suggestions

SIR,—Now is the time to make suggestions for an alternative health service. I doubt if there are many practitioners who in their heart of hearts really like N.H.I. as it is at present. It would therefore be a mistake to extend it to dependants.

What are the salient evils of N.H.I.? I would say: (1) The encouragement of the bottle-of medicine addicts, the neurotics, and those who feel they are entitled to a week on the panel after paying in for years. (2) The latitude given patients to join one's panel for the first time, though long resident in district, on occasion of an illness at night, subsequent visits being

necessary. The patient leaves district shortly after and the doctor is entitled to a fee of 3s. 10½d. paid some months later. (3) Patients presenting cards, receiving attention, and subsequently found not to be entitled to benefit. There are of course other abuses, not enumerated. Imagine under the National Health Service the items of attention per year for a baby, for whom the capitation fee will be not a penny more than for an adult.

All the above irritations and injustices can be avoided by the following : (*a*) Option for all, including dependants, below a certain income limit to join a contributory scheme. This would not penalize those who do not wish to contribute. (*b*) Cash payment for service by patient, who passes receipt to the Government for partial repayment. (*c*) An extension of pathological facilities and hospital accommodation.—I am, etc.,

Bournemouth A. R. THATCHER.

Alternative Insurance Scheme

SIR,—The recent plebiscite shows that the profession opposes a certain system of payment and control, but no one opposes an extended insurance service of some sort. Do we have to wait until the Government organizes this for us ? In the case of general practitioners at least it seems feasible for the individual doctor to offer services for an annual subscription. The B.M.A. could lay down model forms of contract and suggest rules to prevent abuses and fix subscriptions. Entry should be voluntary, but open to anyone. Now that we have shown our dislike of the Government's plan, can we not produce a practical plan of our own, piecemeal if necessary, to commence as soon as possible ?—I am, etc.,

Paignton, Devon. J. F. BURDON.

Alternative Service

SIR,—While the profession has won a notable victory, they must be careful that they do not lose the peace. It is now up to the B.M.A. Council to draw up a well-considered plan to replace the politically forced creation of the Government.

Unless they are to fail even more miserably the following points must be closely borne in mind. (1) The profession's general-practitioner strength is nothing like large enough to cope with the enormous increase of work that will accrue when the whole population is entitled to free medical attendance. (2) We should strike a blow for the nursing profession in our own interest as well as theirs. I suggest tentatively a 50% increase for doctors, and about 200% increase for nurses. These recruits could be obtained (*a*) by subsidizing medical education and nurses' education ; (*b*) by Government propaganda fixing hours of work, promising good food to nurses, and recreational facilities, generous holidays, and pensions for sickness and retirement. (3) Unless the Service is going to be gravely discredited it must not be started until such time as the Government's clinics are ready and properly staffed with telephonists, typists, and adequate domestic service.—I am, etc.,

Gt. Yarmouth, Norfolk. LEONARD LEY.

Profession Should Plan Service

SIR,—Having at last, thanks to the B.M.A. and aided by Mr. Bevan, obtained what formerly seemed impossible, a united profession, surely the time has come to decide what we want. I was in agreement with Mr. Bevan in one of his statements in the Commons debate, that we disagreed with all the Ministers of Health who have tried to produce a National Health Service. Why ? Because as experts we will not be told how to do our job. We should be told by Parliament to produce a comprehensive service, and within broad limits, agreed mutually without rudeness, threats, or preconceived prejudices on either side, we should work out the details ourselves. As in other spheres, the expert is called in, told what result is wanted, and left to produce it.

It is a great pity that the National Health Service has become a political issue. The nation's health should be above party strife ; and the medical profession dislikes Labour, Conservative, and Liberal dictatorship on details—in varying degrees, doubtless, but all disliked.

We should now inform the Press and the Minister that if a health service is wanted we will organize it, provide it, and work it. Tell us how much money is available, give us the necessary aid from financial experts and statisticians, and we will do the job. If we have not done our job within a certain time, say 2 years or 5 years, then we cannot complain if we are told how to do it. We must then work out some details and agree on them among ourselves. No doubt the B.M.A. Council has plans, but I suggest we should express our opinions in letters to the *British Medical Journal* and through study groups to the Representative Meeting on points about which individually we feel strongly: the abiding principle throughout to be freedom, of thought, word, and action, under the laws affecting everyone and with a reconstituted G.M.C. for disciplinary procedures.

My own essential points are:

(1) A service available to 100% of the population, but "contracting out" allowed. (Freedom for the public.)

(2) Goodwill to be retained. (Freedom for the profession.)

(3) Payment by capitation only, 21s. per head, perhaps less if and when health centres are provided, with secretaries, nurses, instruments, telephone operators, cleaning, lighting, heating, etc., complete.

(4) Increased capitation fee in under-doctored areas and in rural areas.

(5) Limit of 3,000 in urban areas, with the opportunity for doctors with special skill, experience, or aptitude to earn more by a part-time specialty.

(6) Abolition of some of the minor irritations of the present N.H.I. regulations—e.g., the unnecessary frequency of certification.

—I am, etc.,

Torquay. R. A. LATTEY.

Profession Must Find Solution

SIR,—As one of the minority who, from deep conviction, voted "Yes" to the first two questions of the plebiscite, whilst pledging my unconditional loyalty to the Association by my reply to the third question, I feel that I have the right to urge my views at the present juncture, in the hope that they may contribute towards the settlement which we all desire. The plebiscite revealed two things.

First, it revealed the depth of feeling created by the Minister in his handling of the profession. We have, as a profession, expressed this feeling in no uncertain way ; nevertheless, we must remember that it is the Act which we have to decide upon, and it will serve no lasting purpose whatever to try and make the Minister a scapegoat. Let us now bury this personal feud.

Secondly, the plebiscite revealed that the majority of doctors have shied at the last fence ; that in point of fact they do not, subconsciously, want a National Health Service at all. They are still thinking in terms of some general medical service for the nation, some compromise between nationalization and private enterprise. In point of fact this Act is itself a compromise ; from the point of view of the Labour Party most definitely so. When one considers without prejudice the varied schemes mooted in the past few years one realizes that with all its faults and potential dangers this present Act is the most workable scheme that has been evolved to date. It can be compared in its breadth and latitude with the great Education Acts which our social order has produced.

If we analyse all the points at issue between the profession and the Government in turn we cannot but realize how weak these points are from our own point of view. In the recent debate in the House the support offered us by the Conservative Party on the question of buying and selling was so feeble that we should realize that this is a closed issue which no Government can concede. No lay person can understand why we should object to the minimum of control in the matter of permission to practise, since this measure is a protection for ourselves as well as for the public. In practice it will work less hardship that the present system. The supremely rational reply of the Government to our representations on the matter of appeal would convince any other mind than ours. How can we expect the support of public opinion on any of these three points?

There remains (apart from purely technical matters such as partnership arrangements) only the question of the basic salary. The profession itself originally suggested this and supported

it. Ideally it is a most attractive suggestion in itself, serving real purposes; and it is only because we persist in regarding it as the thin end of a wedge that we reject it. I am opposed to a whole-time salaried service no less vigorously than any other member of the profession; we are all agreed that such a service would spell the ruin of medicine; but I am convinced that the Government no less than ourselves realize this fact, that they are not so foolish as to entertain a provision that would ruin the Health Service. What some neo-communist Government might do in 50 years' time is not within the realm of practical politics; it is for us to prevent such a calamity by proving that the present Service is workable. It matters little whether or not the basic salary is retained; if the Government concede this point (and it is the only point which, on principle, they can concede), then all that will have been achieved will be the saving of the face of the profession.

We want freedom; freedom is inseparable from responsibility. It is for us now, as a profession, to accept moral responsibility for the present situation and to find the solution, which inevitably entails considerable sacrifice on our own part. Our case, point by point, is not strong enough to stand the strain of a prolonged conflict, and nothing would damage our prestige more than an eventual drift as individual doctors one by one come to realize how necessary a national service of medicine is in this changing world.—I am, etc.,

Devizes, Wilts. A. C. MOWLE.

Constructive Proposals

SIR,—It must be apparent to many of us that the overwhelming majority against the present National Health Service Act was not obtained entirely on the four principles iterated by the British Medical Association. If the B.M.A. really does want a good Health Service now is the time for really constructive proposals for a good scheme to be put forward. The suspicion that some of the leaders of the B.M.A. do not want any form of National Health Service must be removed. Here, for what it is worth, is my idea of a plan.

1. The standard of general practice must be maintained, and not allowed to decline owing to the vast amount of work and the limited amount of time that can be devoted to individual patients. The accumulated knowledge and experience over a number of years must not be thrown on the scrap-heap. The conscientious doctor who takes a pride in accurate diagnosis and treatment should be allowed to treat his patients as he likes; quality and not quantity should be our aim.

2. Consideration for the doctor ageing should be taken into account. (It is unreasonable for him to work at full pressure all through his professional life when the character of his work, both physically and mentally, does not change one scrap.) Here is scope for an alternative to a basic salary to operate. From the age of 45, increments of £50 should be paid at five-yearly intervals as an addition to the capitation payment to compensate for the inevitable progressive loss in the doctor's earning capacity.

3. Full diagnostic facilities for all practitioners should be made available immediately. The public would be shocked to know that any limit is placed on the scope of treatment of National Health patients as compared with private patients, and the present Act has done nothing as yet to remove this anomaly.

4. Health centres must be provided immediately; for how is the doctor to cope with the work without the help of nurses, clerks, telephone operators, etc., and how is he going to have any rest unless the work of a district is arranged by rota? Again, is the doctor's wife still to be an unpaid servant, this time of the State? The difficulty of erecting health centres is recognized, but, whatever the disadvantage, existing buildings must be utilized as a temporary measure.)

5. The capitation fee must be 25s. If this fee were agreed upon as partial compensation for loss of practice, then the question of abolition of sale of practice would resolve itself. It would also enable the doctor to limit his panel to reasonable proportions, and not to be forced to accept work and responsibility which he is unable to carry out to his satisfaction.

6. We should appreciate the provision of superannuation made in the present Act as it stands.

It will be seen that all these suggestions are practical and would not involve an amending Act—simply a retractation of the avowed intent of some members of the Government to introduce a full State-salaried service.—I am, etc.,

Ruthin, Denbighshire. TREVOR HUGHES.

Compromise and Safeguards

SIR,—Our representatives must make a determined stand on the points at issue, but if it becomes necessary to compromise on the buying and selling of State lists some insurance or other machinery should be set up to enable a practitioner to occasionally change to another district without immediate loss of income. Negative direction will give rise to so many abuses that it should be resisted at all costs. It should be made definite that a doctor in the Service may sell his house and the private part of his practice freely. I am one of those "not so young" G.P.s who have been almost entirely engaged in private practice for many years, and I feel quite unable to face large-scale contract practice. I suggest that clauses in the Act penalizing private practice should be revised. (1) There should be no power to take over hospitals and nursing homes after the appointed day without their consent. (2) An allowance should be granted towards the cost of the drugs on private doctors' prescriptions, and purchase tax should be abolished.—I am, etc.,

London, W.14. C. W. ROE.

Four Main Issues

SIR,—I am opposed to the Act in its present form. But of the four main points at issue, one only is to me anathema; the others, however objectionable, I could accept. I am sure there must be many who feel as I do. Would it not be possible to find out, by another plebiscite, on which of these four main issues most general practitioners are adamant and on which they would be prepared to compromise? The information might help our leaders to obviate a fight which, however necessary and heroic, will be to many of us a costly and distasteful affair and to most of our patients a sordid and unedifying spectacle.—I am, etc.,

West Drayton. A. COYER.

Fear of Salaried Service

SIR,—So far as I can judge the main fear is that general practice should become a full-time salaried service. Personally I am of opinion that such a service would be damaging to the best interests of doctors and patients alike. If this fear were to be removed it would, to my mind, negative any objection to the £300 basic salary as the thin end of the wedge and would also mitigate, if not even entirely negative, the objection to the ending of the buying and selling of practices.

My suggestion is as follows: (1) There should be a provision in the Act that the question of a full-time salaried general practice service should not be brought up at all until the service has been running for ten years. (2) If by that time there is reason for the matter to be brought up the case should be decided by having a quiet and friendly plebiscite of general practitioners who at that time are running the general practice service, excluding all others. If, as is likely, the voting were to be against the full-time salaried service, the plebiscite decision should be accepted as final. Payment by capitation, with or without a small basic salary, would then continue as the ultimate rule. If the voting were to go the other way, then discussions as to details would be required, but the majority vote should hold. Such a delay would allow for heated spirits on both sides to cool and would give an opportunity to test the scheme for a sufficiently long time to judge of its merits or demerits. I believe it would also lead to an arrangement which would be agreeable to most of the doctors, most of the patients, and (is this too much to expect?) most of the politicians.—I am, etc.,

Dundee. A. E. CHISHOLM.

Retain Goodwill

SIR,—The question now is on which point shall we fight the main battle. Surely the important thing is to maintain our independence and to preserve the doctor–patient relationship. To secure these two conditions it is essential that we retain the goodwill of our practices. The Socialists knowing this have done a lot of propaganda against what they call "buying and selling of patients," and this has had its effect even amid our own ranks. Nevertheless, if we give way on this point we might just as well throw up the sponge and save ourselves a lot of worry and expense.

We should say to the Government : Let us retain the goodwill of our practices and we will concede you the other points at issue ; furthermore, we are prepared to accept some measure of control over the transfer of practices. In fact we could safely hand this function over to the board which will replace either the insurance committee or the panel committee, it would probably do the job better than the commercial agencies do it, and it would act in the best interests of buyer and seller.

What are the other points ? Appeal to the Courts ?—a double-edged weapon and one which would be very rarely used. Basic salary ?—no danger at all if we retain the goodwill of our practices, in fact it could be very usefully used to subsidize young men or to encourage them to practise in undesirable areas. Partnership difficulties ?—these again would resolve themselves for the great part, but in any case the Minister is prepared to give way on this point. I sincerely hope the Representative Body will decide to make the retention of goodwill the major issue, and if we put it to Government and public that we are prepared to concede all other points for this one then I think we would have a great volume of support. If we won our point we would have achieved victory.—I am, etc.,

London, S.E.1. W. B. PEMBERTON.

The Panel Yoke

SIR,—Mr. Bevan's delusions of a raucous-voiced politically minded minority of doctors intent on an evil thing develop one step further towards carpet-chewing when he declares in Parliament that he has made all the concessions and the doctors none. We have made so many concessions that we are left with a weakened case to present to the public. The rights to buy and sell practices, to appeal to the courts, to move without permission, and not to be salary-earners seem relatively small matters to the average man. To win public support we should now take a firmer stand, with a clearer case which all can appreciate.

Possibly we have called a halt too late in the process of sacrificing ourselves—and our wives. We have suicidally offered a "free" G.P. service to every man, woman, and child in this country, undeterred by the fact that most conscientious panel doctors are half worked to death already. But now mercifully our sacrifices are scorned. We have the opportunity to reconsider and restate our case. Now we have the chance to redeem the mistake made in 1911. The panel yoke is about to be lifted from our galled shoulders. No longer will twenty million people feel that they pay doctors and so might as well "have" them, considerately or inconsiderately. Let us boldly state that advances in medicine render it impossible for honest doctors to contract to supply all possible aids to all patients, especially if bothered by bureaucrats. Let us confess the bitter truth that the panel system debases the practice of the art and science of healing.

Should we not now return to the time-honoured dealing between doctor and patient in which each gives what he can ? If there must be intervention of cash-collectors between doctor and patient then let our patients pay our own collectors so much a week or month off their accounts. This system has worked in Lancashire, and has this to recommend it : that patients only pay for what they have had and only ask for what they need. There would be no question then of the divine rights of Parliamentary collectors of our earnings.

Our case for the public would be simple if we confessed our distrust of any form of contract practice and our resolve to preserve some freedom for ourselves. It would be strong if we insisted that we hold the doctor–patient relationship sacred and will not admit unnecessary intrusion on its privacy. It would be invincible if we sufficiently explained the great sacrifices and concessions we have already made as panel doctors with little peace in our homes owing to the insensate demands of contract patients and bureaucrats. We know that we have not got the time and strength to do half what we should like to do for our patients. Let us say so. Let us add that we wish to be doctors, not M.O.s, not even panel doctors any longer. We will be wise, kindly, generous helpers of our own free will, and not by contract any more.

You well point out that Mr. Bevan has failed to find a narrow target for his vituperation of persons. But you fail to make clear that this Welsh class-warlock, building on the Welsh Wizard's foundations laid in 1911, has dangerously narrowed the apparent differences between his plans and ours. Across that too narrow gap he hopes to throw the blame for the disappointment of electors' hopes falsely and treacherously raised. So let us tell the truth about the panel and so set ourselves free from his trap.—I am, etc.,

London, W.1. WILLOUGHBY CLARK.

Remuneration

SIR,—The plebiscite makes it abundantly clear that the doctors as a whole are opposed to the new Act, but it does not say why. There have been reasonable criticism in the Press and from the public that the B.M.A. have been destructive, but not constructive ; that they have no agreed plan of their own. This is regrettably true. The explanation lies in the fact that nowhere in the world has a wholly satisfactory system of remuneration for a complete service been evolved.

In all forms of employment and of organization of labour there is inevitably some degree of loss of freedom and frustration of initiative, but nowhere is this loss of freedom so vitally important as in the arts and in the personal relationship of medicine. For this reason a rigid State salaried service is ruled out. There is no doubt that a capitation system with professional freedom would be much better than a State salaried service, but the capitation system itself suffers from two incurable defects: (1) The elderly and chronic sick, who make up such a large part of practice, are put in the humiliating position of feeling that they are a nuisance. They are acutely aware that they are a liability rather than an asset to their doctor and, if they are sensitive, feel apologetic when asking to be accepted as a patient. (2) There is no financial inducement for the doctor to undertake any particular service. In theory this should not count, but in practice many men prefer to be paid for what they do because they feel that it is a safeguard against any tendency to slip into slackness.

All will agree that for those who could afford it private practice has in the past given as good a service as doctors were able to provide with the limited facilities at their disposal. It would seem evident that it is desirable not that all should be "on the panel" but that all should be "private patients." We want a true health service based upon insurance ; one in which the patient chooses his doctor and decides when he needs help without fear of cost, while the doctor, backed by the State insurance funds, has at his disposal all the necessary facilities to give of his best.

Clearly the cost of the best possible service cannot be met by an equal contribution from all classes—the individual contribution would be far too high for the poor. Therefore, either, as in the present Act, the State must meet the extra cost from general taxation or, as in the New Zealand system, it must be borne by a personal security tax rising with income. The New Zealand system provides a complete health service, and the plan for remuneration is satisfactory except that it is open to abuse by excessive claims. The patient chooses his doctor and the State pays the account at a fixed rate per service. It is also permitted to doctors, in agreement with these patients, to make an extra charge for visits to the home. In this way doctors whose services are especially in demand may earn a larger income. This extra incentive may or may not be approved, but it does take note of quality as well as quantity of work and helps the older, experienced practitioner in his years of declining strength.

In other countries where high wages are the rule the principle of making the patient contribute part of the charge at the time is considered to check unnecessary visits and to give the patient a sense of responsibility without imposing any hardship. A safeguard against excessive claims by doctors could easily be devised by limiting the extent to which a doctor's claims on State funds should be met to an agreed total figure per thousand patients—this figure to be based on the Spens report. A higher rate would need to be allowed under special conditions.

In the past many doctors have disliked the intrusion of financial questions into their personal relation with their patients. The main reason for this feeling was the fact that so often serious illness resulted in heavy expenses for their patients when they could least well be met, and that in any

case no estimate of costs could be given in advance. If they could afford it all patients would prefer to feel that they were giving something for services rendered. They would prefer to know that, as at present, they could pay for the privilege of asking their doctor to call although it might be physically possible for them to attend at a centre. This preference is exercised by all classes to-day and its loss would be resented. Mothers in the lowest income groups frequently pay an extra charge to save the inconvenience of a surgery attendance when children and housework need to be considered. If it be thought that an extra payment for visits in prolonged illness would impose undue financial strain, a larger State fee could be allowed in all cases in which a patient is confined to the house for more than one week.

At present there are not sufficient doctors to provide a general service of the best private practice type, and the aim for the future should be that no doctor should be responsible for more than 2,000 people. As this point is approached the rate of payment per service and the number of claims allowed per 1,000 would need to rise if the income and consequently the quality of doctors are to be maintained. This must mean an increase in cost to the State, but in no other way can a service of the highest quality be organized. Should remuneration be arranged after some such plan, those patients who need most help would feel that they were an asset rather than a burden; doctors would be rewarded according to the quality and quantity of work performed, and the State finances would be adequately protected.

If Mr. Bevan and the Government are sincere in their assurances that no approach to a whole-time salaried service is intended, they should have no objection to this plan. It cannot be argued that it is too complicated to work, for it is, in fact, working in New Zealand in spite of the absence of the safeguard suggested. Were this plan accepted the public and profession would be free and there would be no four points for deadlock.—I am, etc.,

Bexhill-on-Sea. L. NORMAN REECE.

Compensation and Hardship

SIR,—Having retired from practice I have no personal interest in the National Health Service Act, though whole-heartedly in favour of its rejection in its present form. However, there is one aspect of the proposed abolition of the sale and purchase of practices which I have not seen mentioned. The Minister of Health prides himself on his magnanimity in offering the younger members of the profession a chance of entering practice free from debt. This may sound attractive to some, but have they thought of their future? The present proposal is that all practices in existence on the appointed day shall be compensated either on death or retirement of the owner, should he enter the Service, on some future unspecified date. For those entering practice after this day, in the event of death or retirement, there will be no compensation, and no pension, to say nothing of the proposed penalties in regard to sale of houses, thus leaving no assets beyond what could be saved during the years of practice. The prospect of hardship to dependants appears to me to be much greater than under the present system of sale and purchase, which has worked quite satisfactorily up to now, and with capital available on favourable terms at the present time no insuperable embarrassment should be caused in the early days of practice. It is easy to see why the Minister lays such stress on this abolition, as until this is effected it would be impossible to introduce a whole-time State medical service.—I am, etc.,

Hassocks, Sussex. W. E. L. HORNER.

Extend Panel

SIR,—(1) Let the Health Service for all, which we all advocate, develop by evolution—not revolution. (2) Let us realize that there are not enough doctors at present to give a free service for all efficiently. (3) Let the public be told this fact and be reassured that all the poor will be cared for. (4) Let the present panel be used as a basis, including dependants and all pensioners and public assistance patients. (5) Let the income limit be adjusted as there become more doctors available to give a good service.—We are, etc.,

Birmingham, 11. CHARLES AND DOROTHY BIGGER.

Remuneration of Consultants and Specialists

SIR,—Although the remuneration of consultants and specialists cannot be determined before the results of the Spens Committee are made known, I feel that the time has come when we should make some definition of the nature of consultants and specialists and consider something of their remuneration. I would suggest that we should define three categories. First, consultants might be described as those possessing higher degrees—M.D., M.R.C.P. or M.S., F.R.C.S.—and engaged solely in a specialty of medicine or surgery (including, of course, general physicians and surgeons). Secondly, senior specialists might be considered as holding a diploma in a special branch and to have practised this work for ten years or more. Thirdly, junior specialists being those who hold such a diploma but have practised less than ten years in the chosen work.

With regard to remuneration I am of the opinion that a consultant might reasonably ask for five guineas for a two-hour session. The fee suggested as a minimum by the B.M.A.—that is, four guineas—would be reasonable for the senior specialist and three guineas for the junior for a similar session. Longer sessions should be paid accordingly. It is unfair to make the basis on the number of patients seen if insufficient patients are available to fill the session.

When we consider the present payment it is to be seen that remuneration varies absurdly. Some clinics have advertised five guineas a session, and in the *Journal* of Feb. 21 there is a post of part-time psychotherapist offering only £2 12s. 6d. per session. No mention is made of the qualifications required, except the applicants must have experience in child psychiatry. Surely the correct way to determine how much should be paid per session is by seeing how much a consultant or specialist could earn *if engaged solely in sessional work*. The fees I have suggested would give a reasonable if not exorbitant salary. It would be interesting to know what others think of the definitions I have given and the suggested remuneration.—I am, etc.,

London, W.1. CLIFFORD ALLEN.

Power of the Minister

SIR,—May I advance a certain solution to the problem of our conflict with the Minister of Health and, it must be now realized, owing to his cunning tactics, with Parliament. The three main points of disagreement—buying and selling of practices, the basic salary, and the lack of appeal outside the Minister—are unacceptable because they all add up to the dictatorship of a single politician. It is a dictatorship because this man has the right, within a very wide framework, to adapt and alter as he alone sees fit, by regulation and without reference to Parliament. If Parliament would decree the main details of the medical service and refuse Mr. Bevan permission to alter the structure of it, then his powers are limited and defined and we need not fear dictatorship by him or any single individual. If this were so I personally, and many with whom I have spoken, see no reason to sustain our objections to the present Act.—I am, etc.,

Manchester, 13. T. B. FITZGERALD.

Misrepresentation

SIR,—After the years the profession has spent in the study and discussion of the National Health Bill and Act from the time of its inception to its entry on the Statute Book, Mr. Bevan's allegation that we do not understand the Act and that it has been misrepresented to us by our "leaders" would be amusing if it were intended for *our* consumption. But it was not. It was intended for those members of his own party and for those members of the public who do not understand the Act as well as we do.

Those who think Mr. Bevan knows no better than to believe that we have been misdirected are mistaken. Mr. Bevan is fully acquainted with the democratic constitution of the B.M.A., and I have been informed—rightly or wrongly—that he has studied the "Handbook" in which the working of our constitution is explained. He knows that the will of the profession is expressed through the Representatives of the Divisions, who are instructed to carry out the wishes of the individual members; he knows that the Council is the executive which carries out

the decisions of the Representative Body, and therefore of the profession as a whole. He knows that the officers are the spearhead through which the decisions of the profession are promulgated. We know all this, but the public do not. Whether in view of all this Mr. Bevan's gross misrepresentations are innocent and to that extent honest, or whether deliberate and otherwise, may safely be left to the judgment of the profession.

Does he really believe that a profession to which he himself has applied the adjectives "honourable and learned," to which he himself has paid the unintentional compliment of accusing them of "rejecting the Act before they knew the terms of remuneration;" does the Minister, I say, really think that this "honourable and learned profession" is incapable of judging for itself and coming to a decision? Or does he think we are spoon-fed with the opinions of others?

There are many other points on which one could enlarge, but we are not a flock of sheep to be stampeded, and we are proof against bullying. I think the profession owes Mr. Bevan a deep debt of gratitude for welding it into a state of solidarity such as it has never before attained.—I am, etc.,

Brookwood, Surrey. H. M. STANLEY TURNER.

Tell the Public

SIR,—I have read the correspondence in the *Journal* of Feb. 21 with more than passing interest, and especially the letter by Dr. Reginald C. Jewesbury (p. 359), advocating a short exposition of what we stand for and what we are standing against—not more than 500 words, attractive enough to secure general attention, simple enough to be within the grasp of every man's intelligence, to be broadcast far and wide. A series of such pamphlets might be issued with great advantage during the next few weeks. As a matter of fact, there appeared in *The Times* of Feb. 21 just such an admirable exposition, under the name of Prof. J. H. Dible, of London University, entitled "The Doctors' Plebiscite." This was ample explanation for the relatively small but enlightened circle who read that journal; but for the "Plebs" as a whole I would advocate something that explains adequately the true significance of the basic salary and the selling and buying of goodwill, something that shows these to be matters concerned with our freedom, and not a squalid haggle over filthy lucre, which is precisely what a commercially minded public believe them to be—a belief which the Socialists are exploiting with clever perseverance.

Further, the public must be taught here and now that their interests and those of our profession are one and the same—namely, freedom, and the keeping of politics out of medicine; nor should the things of the spirit be ignored.

Time is in the essence of this matter, and these expositions should be scattered with persistence for some weeks to come.—I am, etc.,

Liverpool. J. GORDON DANSON.

The Fight taking Shape

SIR,—The fight that is now taking shape between the medical profession and the Ministry of Health has not been unforeseen by most of us, and I for one envisaged the present position in the columns of the *Journal* in 1945, but we all hoped Mr. Bevan might see reason and settle this dispute sensibly, as it must be eventually. Mr. Bevan with his characteristic stubbornness is no compromiser and may therefore have to go, and then the Government's headache really begins. Mr. Bevan may join up with Mr. Dalton to help to fire the malcontents.

Mr. Bevan has already fired the first broadside by throwing doubts on the validity of the doctors' plebiscite, and he has suggested the doctors are defying the Act of Parliament. This is certainly not so, for, at present anyhow, as the Act stands the doctors may or may not join the Health Service according to their wish. It is not the doctors who need worry—it is Mr. Attlee.

The result of the plebiscite leaves no doubt that a huge majority will prefer not to join the Service and so decline to operate the Act in its present bad form—bad for the doctors and bad for the public. It is believed the Cabinet ill-advisedly have decided in advance to make no concessions to the doctors, and so the fight is on. The Government therefore hope that the individual doctor will enter the scheme even if he votes against doing so in the plebiscite. Indeed the recalcitrants will come under heavy and continuous pressure as the appointed day draws nearer for the formation of the Health Service. The Cabinet again have made a mistake.

I am sure this country is slowly but surely sliding down the hill with our present incompetent "planners" in control, and this is no empty vain statement. It is therefore up to one and all of us to accept responsibility when we can and help to pull us out of our present troubles. It is indeed this great feeling of necessity, of almost despair for one's country, that has brought a nonentity in the medical world such as myself into the political arena. We live in one of the most perilous periods of our history, but never perhaps in such a parlous state of weakness as we are in to-day. The people of this country must wake up to the full realization of how we are saddled to-day with an incompetent and dogma-ridden batch of theorists.

The doctors must now do their part by standing firm, and it will only be a matter of time (and not a very long time) until the Government seek to come to terms with the profession, when we can then amend the present badly framed Act and establish, as we have always desired to establish (irrespective of political flavour), a sound health service for the benefit of all members of the community in this country.—I am, etc.,

London, W.1. NORMAN P. HENDERSON.

Action Now

SIR,—The time for action has come and we look to the B.M.A. to give the profession a lead *now*. July 5 is awfully near, and every day spent in defensive tactics not only lowers the morale of those who are unwilling to accept the Act as it now stands but gives the Minister just cause to continue his cynical attitude that the majority of us who voted "No" will change our mind as the appointed day gets nearer. It should be realized that economic pressure and—let's face it—the fact that we are not certain that our colleagues will not waver will tend to drive a large section of the profession into the Minister's waiting net. Therefore why wait until March 17 before the Representative Body decides on the next move?

The plebiscite result demands that *immediate* action be taken, and I suggest that forthwith the Minister be informed that we resign from the N.H.I. on April 1 (or some convenient date) unless between now and then it is agreed between him and our representatives: (1) That there be no basic salary as such but an expenses allowance. This would, I feel, satisfy the Minister's urge to help young doctors and at the same time would not make them salaried servants of the State. (2) That there be freedom to join the service without penalty at any time. (3) That there be no direction—negative or otherwise—but that special inducements be offered to enable the under-doctored areas to be efficiently served. (4) That the capitation fee should remain unaltered for each patient, irrespective of the size of the doctor's list. (5) That a compromise could be reached about sale of goodwill. At the same time the public must be told by an intensive Press campaign exactly what we are fighting for. I feel that this is of great importance, as at present the large majority of the public think that our dispute with the Minister is either financial or political, or both.

One thing I feel is certain, that unless we get *immediate* action our present united army will have dwindled sadly by the time the appointed day arrives. If we are going to put up a fight against the curtailment of our individual and professional liberty we cannot start fighting too early. This is no time for defensive action—and anyway we don't need that kind of action if we are to retain our freedom and self-respect. Time is not on our side, nor at the moment are the majority of the public. We need an alternative scheme for them. Why not extend the panel system and leave it at that?—I am, etc.,

Plymouth. A. S. BRADLAW.

Attack Now

SIR,—I am whole-heartedly in favour of widespread integration of the hospital and auxiliary medical facilities of the country. I believe all doctors are, as in this way we can better the service we render our patients. I am whole-heartedly against the present Act, which, under cover of this integration, aims at completely removing personal liberty from the doctor, and in large part from the patient. I think it is pathetic that

this noble profession should try to fight such a great issue on the narrow field that has been chosen. The State aim is obvious. Let us fight that, not quibble over the means which the State is employing. May I associate myself completely with Dr. K. Knowles's advice (Feb. 21, p. 357) and say fight *now* before Mr. Bevan can starve us out? After July 5 the spirit may be willing but the flesh will be weak.—I am, etc.,

Burton-on-Trent. R. LUNT.

Stand Firm

SIR,—The vast majority of the profession having now won a commanding position *vis-à-vis* the Minister, it is surprising and alarming to find so many of our colleagues—e.g., Dr. R. A. Nash (Feb. 21, p. 358) and others—seeming to cast doubts on the validity of that position and expressing the opinion that this and that principle for which we have been fighting are not after all worth fighting for. Some miss the point altogether; for example, one of my own correspondents, after airily dismissing three of our main contentions as unimportant, says of the abolition of goodwill: "Our strongest point—the Minister's remark about buying and selling patients—is sheer bunk."

Some think the Minister should be approached with suggestions of compromise, etc. Surely, Sir, such an attitude towards so intransigent a Minister is the height of folly and would merely delight him who is banking on cleavage in our ranks. It is devoutly to be hoped that the 90% will stand firm this time and that no approaches to the Minister will be made either directly or indirectly by the B.M.A. or by others apart from the B.M.A. Any such approaches for further negotiation must come from the Minister, for to his request for an answer Yes or No to enter the Service as it stands he has twice been given the answer No in no uncertain voice, and the objectionable parts of the scheme have been pointed out to him *ad nauseam*. He says our objections are unreasonable and our fears unfounded. Let him then expunge the objectionable parts and then we can talk again. Why does he not do so? Simply because he knows very well that these parts are fundamental to our freedom, which is what he is set on depriving us of.—I am, etc.,

Thame, Oxon. C. H. BARBER.

Basic Salary and "Squatting"

SIR,—While the basic salary is rightly or wrongly suspect in its political implications by the vast majority of the profession there are other grave objections to it that appear to have been overlooked. (1) The squatter, who has always been objected to by the established practitioner, in being subsidized will be paid at a very much higher rate per patient than the long-established practitioner. (2) The squatter is not required to submit any evidence of competence apart from a registrable one. In general he will be a young inexperienced doctor who has short-circuited the usual avenues affording experience—hospital appointments, assistantships, etc. The net result will be that the inexperienced in being subsidized will be encouraged to be an embarrassment to decent established practice and practitioners. At the same time there is no recognition by way of additional remuneration of approved experience in practice or for higher qualifications.

Witnessing this state of affairs, can anyone seriously believe Mr. Bevan when he claims that the idea behind the N.H.S. Act is to provide a comprehensive and better service for the whole community? Surely a better plea for any kind of supplementary remuneration would be additional capitation in recognition of approved experience and qualification to encourage a better and higher standard of service in general practice.—I am, etc.,

Fraserburgh. J. MACLEOD.

No Option

SIR,—In the *Supplement* of Oct. 14, 1944 (p. 83), you published a letter from me (then a wing-commander in the R.A.F.) in which I asked what the B.M.A. was doing or intended doing regarding the reinstatement of men who like myself had lost their private practices as a result of war service. In my own case, within six months of my recall to the Services in 1939 I had lost the whole of the income from my practice and over £2,000 capital I had invested in it up to then. For this I received no compensation, and on reverting to the retired list in May, 1946, I received a miserable gratuity of £175. With this I had to start all over again at the age of 46 and with a family of five children ranging from 1 to 15 years old to bring up.

After the hopeless failure of the B.M.A. Protection of Practices Scheme I can hardly be blamed for lacking faith in the integrity of my fellow practitioners.

In the recent B.M.A. plebiscite, while voting my disapproval of the Health Scheme in its present form, I did not agree to abide by the decision of the majority. If the scheme is forced upon us in July I for one intend to enter the Service, not because I approve of it, but because financially I have no option. And—as I remarked in my letter of 1944—there must be hundreds in similar circumstances to myself.—I am, etc.,

Diss, Norfolk. J. H. CULLINAN.

The Moral Issue

SIR,—The letter from Dr. Thomas J. Agius under the above heading (Feb. 21, p. 362) should be read by every practising doctor, as it portrays the appalling encroachment of the State into the "sacred secrets" of a man's life. These secrets up to now have been confided to the doctor only, and because the doctor up to now has also been called a friend. This bond which many doctors have with their patients must not be encroached upon or medicine will become a trade and be no longer an art.

"Discretion tested by a hundred secrets"—this was part of R. L. Stevenson's tribute to the medical profession, and he also wrote, "Generosity he had, such as is possible to those who practise an art, never to those who drive a trade." Sir, I would say that under State service we shall be driving a trade, and those of us who enter the scheme unamended will have destroyed the very soul of medicine.

Let us by every means at our disposal, whether it be by talks to our patients or lectures, but above all by a united front in our own district, convince the public that this is not the way to Beulah but to Bedlam.—I am, etc.,

Sidmouth, Devon. ARTHUR H. DUNKERLEY.

Nationalized Charladies?

SIR,—While in complete agreement with the views of doctors' wives on their importance to the N.H.S. as expressed in recent letters in the *Journal*, I should like to point out that there are quite a number of women practitioners who, if they unfortunately have no family relative to act as housekeeper, have to bear the double burden in many cases of running both their practice and their house, including surgery, accommodation, etc. Those of us who are thus situated will indeed welcome the nationalized receptionist-cum-charlady already visualized as yet another of the benefits to be conferred on us by Mr. Bevan.—I am, etc.,

Newbury Park, Essex. PHYLLIS C. MACKENZIE.

Brodie's Abscess

SIR,—Under this title Messrs. Stanley Scott and F. S. Preston (Feb. 14, p. 296) state, "It also occurs commonly after compound comminuted fractures." The case history of a patient developing an abscess in the tibia thirteen years after a compound fracture of that bone is reported. This raises a point of importance not only to medical historians but also to clinical teachers, authors, and statisticians.

There is a fascination in employing the name of the discoverer of a disease or of the first to describe a clinical entity. Unfortunately, as time passes, the original description is forgotten and there appears in medical literature and in bedside teaching a broader interpretation (or even a new one) of a condition once described in a masterly manner.

Benjamin Brodie read his first paper on this subject on March 27, 1832, and it was published in *Medico-Chirurgical Transactions* (1832, **17**, 239) under the title of "An Account of some Cases of Chronic Abscess of the Tibia." The clinical details are set out concisely and lucidly. He lectured on the subject at St. George's Hospital on Nov. 19, 1845, and this

lecture was published in the *London Medical Gazette* (1845, **36**, 1399). The first patient in whom he recognized an undescribed condition was seen by him in 1824, but I find no record of him reporting this case prior to 1832; Scott and Preston did not state the reference when they wrote that Brodie had described "his abscess" in 1824.

It is quite clear that the latent abscess occurring at the site of a compound fracture long years after is not the entity described by Brodie, for there had been no open wound of the limb in his cases. The medical literature in our language is valued and we are proud of those whose names we associate with well-known conditions. If only for the sake of those who will read present literature in future days it seems important to realize what condition was described by the man whose name is associated with it. By this means the value of the original work is accurately reported from time to time and the memory of a great man is perpetuated.—I am, etc.,

London, W.1. ST. J. D. BUXTON.

Louse-borne Relapsing Fever in Persia

SIR,—Drs. R. I. Bodman and I. S. Stewart in their interesting article (Feb. 14, p. 291) claim that this disease had not previously been reported in Persia. They may be interested to know that it was encountered in Iraq and Persia on a wide enough scale as to cause much anxiety among our Forces in the campaign of 1914–18. The subject was reviewed at considerable length by W. H. Willcox and J. C. G. Ledingham in addresses to the Royal Society of Medicine on Jan. 27, 1920 (*Proc. R. Soc. Med.*, 1920, **13**, 59). In his opening address Willcox said that the disease was known by native practitioners as "recurrent fever" and by the Turks as "chronic fever," both typhus and relapsing fever being endemic and of greater incidence than enteric fever. Our troops were uninfected until their contact with the local population and Turkish prisoners. Louse infestation was appallingly common in the Turkish army and relapsing fever was known to be prevalent at Kut in the winter of 1915–16. The disease also occurred in the civil and military population of Bagdad in 1917, after its conquest by the army led by General Sir Stanley Maude. The following incidence of cases among military personnel was recorded (the total amounting to 1,883):

Year	British	Deaths	% Mortality	Indian	Deaths	% Mortality
1917 ..	20	—	—	196	8	4·08
1918 ..	110	6	5·5	1,557	126	8·09

Sir John Ledingham demonstrated the correspondence in the incidence curves for typhus and relapsing fever month by month from 1917 onwards which Drs. Bodman and Stewart notice again in 1946. The epidemic started in the last quarter of the year and attained maximal height in April, whereas in the 1946 epidemic January was the month of maximal incidence—a difference accounted for solely by variations in temperature and relative humidity of the atmosphere. On reading the accounts of the two epidemics it is interesting to note that they correspond in almost every detail with regard to symptomatology, complications, and the response to treatment with N.A.B. The mortality was about 1% for Arabs in 1918, being considerably less than for Indian and British troops. It was noted that cerebral relapsing fever might sometimes clinically resemble meningococcal meningitis. Jaundice was often a complication. There was evidence that lice are sometimes infective for both typhus and relapsing fever at the same time. For example, a medical officer contracted relapsing fever exactly 6 days after attending two cases of typhus, and there were other experiences from which it was concluded that lice can be vectors of the two diseases simultaneously.—I am, etc.,

Windsor, Berks. PHILIP H. WILLCOX.

Trichlorethylene in General Anaesthesia

SIR,—Since the introduction of trichlorethylene into anaesthetic practice in 1942, the two factors concerning this drug which have provoked more discussion than all others would appear to be (1) tachypnoea and (2) the necessity of employing only minute amounts of the agent. Concerning these two points, Dr. Gordon Ostlere (Jan. 31, p. 195) does little but reiterate what has been said already many times over.

He states, "The secret of a successful trichlorethylene administration lies in the employment of only small quantities of the drug," previous to which he has said that he uses as a vehicle for his vapour a 20% mixture of oxygen in nitrous oxide. There is, however, no mention of the effect of oxygenation upon tachypnoea and this to my mind is equally important. Using a 20% oxygen–nitrous-oxide mixture rapid respiration will indeed ensue if the amount of trichlorethylene vapour exceeds the minimal. If, however, the oxygen content is raised to 30% or more, then much greater latitude with the amount of trichlorethylene can be allowed and a more easily controlled anaesthesia obtained even though in the long run more of the agent may be vaporized.

Adequate oxygenation would appear to be an exceedingly important factor in the prevention of trichlorethylene tachypnoea, and since Dr. Ostlere's paper appears to have been written for the benefit of persons unaccustomed to using this agent I feel that this point should be stressed. I agree wholeheartedly with the writer when he refers to the use of minimal amounts of the drug, but may I make so bold as to add an amendment to his statement and say that "the secret of a successful trichlorethylene administration lies in the employment of only small quantities of the drug, together with a high oxygen percentage in the mixture"?—I am, etc.,

York. J. MCNAUGHT INGLIS.

Simple Test for Pulmonary Tuberculosis

SIR,—With reference to the letter under this heading (Jan. 24, p. 173) the monocyte–lymphocyte (m/l) ratio is recognized as one of several aspects of the differential count having special interest in tuberculosis, more particularly in relation to "resistance" ($m/l<1/3$) and to "spread" ($m/l>1/3$) of the disease. The idea is promulgated in the Houghton and Frimodt-Moeller indices, where monocytes and lymphocytes are regarded respectively as "liabilities" and "assets"; but in these indices the m/l ratio makes only minor contribution towards the final result, and Muller, who reviewed the literature, concluded that monocytic variations are relatively crude measures of the disease process and in the form of the m/l ratio are not diagnostic. In an established case of tuberculosis, serial haemograms (including the m/l ratio) can be helpful in assessing progress, but unfortunately the controversial significance of the monocyte and the multiphasic aspect of the disease (co-existence of recent and old-established lesions) preclude rigorous correlation with the underlying pathology and there is an inevitable "haziness" when we come to interpret the haematological data.

Classification in terms of an m/l ratio also implies confidence in the value observed, but the differentiation of monocytes and lymphocytes is not always easy and any error in this respect is doubled in the ratio. For example, an error $-x$ in the monocyte count leads to $m-x/l+x$ in the ratio, for what is lost to one is gained to the other. Although supravital staining has been used to improve differentiation, this difficulty still remains—in 1936 Dr. Heaf submitted identical blood films from three cases to each of 11 "competent authorities" and received the following range of reports: Case 1, lymphocytes, 12–29.5%; monocytes, 4.5–40%. Case 2, lymphocytes, 4–19%; monocytes, 4–16%. Case 3, lymphocytes, 36–65%; monocytes, 2–15%. The site and method of the puncture may also alter the picture, as monocytes can stagnate in the lobe of the ear.

Finally the standard error of the ratio which is of the order $\sqrt{m}/l$ (more nearly $m/l[\frac{1}{m}+\frac{1}{l}-\frac{2}{w}]^{\frac{1}{2}}$) must be considered. In a differential count of 100 cells ($w=100$), where $m=8$ and $l=24$, the true value of the m/l ratio is not necessarily 8/24=1/3, but merely somewhere within the range $1/3\pm2$ SE—viz., between 1/13 and 1/1.7.

To summarize—not only is the m/l ratio largely indeterminate in relation to the general and special pathology of tuberculosis but it is also subject to considerable cytological and mathematical uncertainty. Hence it lacks scientific desiderata essential to any reliable diagnostic test and must be viewed with circumspection. Incidentally, bacteriological tests are just as "simple" to do and much "simpler" to interpret.—I am, etc.

Papworth, Cambridge. D. BARRON CRUICKSHANK.

Injection Errors

SIR,—Mr. Harold Dodd (Feb. 14, p. 320) raises an interesting and vital subject. The greatest medical tragedies are surely those following the injection of a solution, prepared either in error by the pharmacist or administered wrongly by the surgeon. Not only are these catastrophes avoidable, but in the majority of cases they occur in the treatment of minor maladies, in which, were it known that even the slightest possibility of risk to life existed, operative treatment would never be considered by the patient or the relatives. As long as this smear on the good name of the profession exists, either individually or collectively, surely it is imperative that no effort be spared to reduce this risk.

The suggestion of tinting the fluids and of etching the contents of ampoules would contribute towards the end we should all have in view. Such methods would require enforcement by Act of Parliament to prove effective, for only by an addition to the Dangerous Drugs Act, making it obligatory for pharmacists to conform to a standard range of colours for common injection solutions, would the danger of these lethal drugs be properly appreciated and avoided.

Even with this additional safeguard it is not likely that the number of fatalities would greatly diminish so long as the present method of inquiring into the cause of death exists. The coroner's inquest is the mode of investigation to determine the cause of death, and this court has as its object to exclude the possibility of murder or manslaughter, a possibility in a death on the operating table so slight as to be ignored. But let us face the fact that the truth is not always spoken, perhaps in some cases from altruistic motives, and also in others when the temptation to conceal is there, if full exposure might tarnish some reputation. If negligence or lack of care is revealed at an inquest it is only by chance, as the purpose is not to inquire into its possibility.

There seems to have arrived the time when all anaesthetic deaths and all others taking place in the course of operative procedure should be investigated by a court other than that of the coroner. This could be composed of three medical men appointed by the General Medical Council with possibly a member of the Bar to advise on legal procedure. The findings and conclusions would be made public and be of inestimable value to the profession.

The public to-day are suspicious of medical evidence and an undercurrent of dissatisfaction is abroad. If the initiative does not come from our own ranks pressure will certainly be brought to bear from other quarters in the very near future.

> "Nane ever feared the truth to be told,
> But they whom the truth would indite."

—I am, etc.,

Stretford, Lancs. W. T. WESTWOOD.

Emergency Bed Service

SIR,—The E.B.S. has now been in operation for nearly ten years and experience has shown that it can be of real assistance to general practitioners. Hitherto it has dealt solely with finding beds for acute patients requiring immediate assistance. In the course of this work it has become apparent that doctors could be greatly helped if the service were able to give them guidance as to the facilities other than in-patient treatment available for their patients, the time and place of out-patient clinics, such agencies as there are to help chronic patients, details of ambulance services, and so on, and all matters on which from time to time doctors require advice, and an endeavour has now been made to acquire the information necessary to answer such inquiries.

The service cannot hope to be omniscient, but it seems likely that most questions of this nature can be answered if the reply is not needed instantly and time is available for the service to make inquiries through its own channels. Where the answer is already known answers will be given immediately. It is proposed therefore to give a trial to a scheme by which the E.B.S. will extend its functions to providing doctors with information on points arising out of their work. Inquiries should be addressed to Monarch 3000.—I am, etc.,

London, E.C.2. R. E. PEERS, Secretary.

Cancer of the Lung

SIR,—With reference to the letter written by Mr. E. W. Sheaf (Jan. 24, p. 173), I would like to bring out the following observations :

(1) It is stated that the incidence of the above disease between 1921 and 1938 has greatly increased, and it is suggested that this is due to increased smoking. It would be of further interest to find out the incidence in the last ten years, as I am informed that smoking has still further increased since the war, especially in the case of women. (2) One often hears the suggestion that it might be due to the tars in the tobacco. Might I suggest that the carbon in the burnt tobacco may have something to do with it? It is a fact that much carbon is present in burnt tobacco as seen in the bowl of a pipe or deposited on a vulcanite denture plate. If the smoke is inhaled a large amount of this carbon must, one would think, be left in the lungs, either in the tubes or alveoli. (3) One should not forget that both smokers and non-smokers are continually inhaling tobacco smoke whenever they are present in enclosed places where smoking takes place, the great difference being that cigarette inhalers are breathing in hot concentrated fumes. It is noticeable that smoke arising from a burning cigarette is blue in colour while that seen after exhalation is a greyish colour. It has either lost something in the process of being inhaled or gained something such as moisture. (4) It is not unreasonable to suspect carbon as being responsible for the disease if merely on the assumption of the cause in "chimney sweeps' cancer," unless of course there is some element of tar in the latter. It would be interesting to know how the tars and carbon are interrelated. Also, how does the incidence of this disease compare in non-smokers and smokers and various categories of the latter? Does the quality of tobacco have any apparent effect on the incidence? Has anything introduced into the tobacco during the process of manufacture any possible effect?

These are but a few of the questions one might ask concerning this terrible disease.—I am, etc.,

Church Village, Glam. T. ISLWYN EVANS.

An Unusual Appendix

SIR,—On Oct. 30, 1947, one of us (T. M. C.) was called to see a woman aged 53, in a rather isolated district. The patient complained of having been "rather slight" for the previous week with epigastric pain and vomiting. The pain had now gone, though she had a lump in her groin which had burst the night before, and she could walk about and felt much better. She was actually walking about her kitchen on my arrival, and had not even seen fit to apply any sort of dressing to the discharging abscess.

On examination there was a large abscess above the right inguinal ligament discharging freely, and on wiping away the excess pus the vermiform appendix was seen protruding through the abdominal wall.

She was taken to hospital forthwith, and the abscess cavity was opened widely (by R. L. O.). The appendix was completely gangrenous and full of pus, with a perforation about 1 in. (2.5 cm.) from the base which was adherent to the bottom of the cavity just to the right of the femoral artery. The mesoappendix could still be made out. A curved clamp was placed across the base and the appendix removed. The abscess cavity was packed with flavine gauze. A course of penicillin and sulphamezathine ensured an uneventful convalescence.

It was apparent that the appendix had actually worked its way through the internal abdominal inguinal ring.—We are, etc.,

R. L. OAKES,
St. Austell, Cornwall. T. M. CRABTREE.

Pathogenic Fungi

SIR,—Since the natural habitat of pathological fungi is not known the following note is being communicated. For isolating yeast-like symbiotic germs from insects I used prune-juice media with or without other metabolites, like liver and yeast extracts. While working at the Indian Institute of Science, Bangalore, I used to be confronted with occasional infection of pathological fungi, but when I happened to continue similar work in Berlin contaminations from pathological fungi became very frequent and I had to concentrate my attention as to the possible source of these germs. In Berlin I worked mainly with homopterous insects which I used to collect from woods, feeding there on

shrubs and small trees. The contamination was not confined to one genus, but *Trichophyton* species predominated. The Petri dishes, on being opened, would give an acrid smell produced by these fungi strong enough to check the breath for a time. The frequency of this infection was such that I had to seek the advice of the late Prof. Bruhns and of his colleague Dr. Alexander, joint authors of *Allgemeine Mykologie*, in Jadassohn's *Handbuch der Hautkrankheiten* (1928).

Dr. Alexander kindly told me that they had found woodcutters and similar labourers who frequently came in contact with wood and timber most liable to such infections. They had presumed that the natural habitat of pathological fungi must be wood or freshly cut timber. The place where I used to collect the insects was exactly such a habitat.

In Europe mycotic infection of the feet, particularly of the toes, is rather common. It is often believed that the infection is derived from public bathing institutions. There wooden planks are provided for bathers to stand on immediately after leaving the bath. Wood, thus constantly moist, would appear to form an artificial habitat for such germs. This explanation brings in line with the main finding communicated above.—I am, etc.,

Bombay, India. S. MAHDIHASSAN.

Milk-borne Tuberculosis

SIR,—We read with interest the annotation (Feb. 14, p. 303) of two articles which appeared in the Swiss journal *Gynaecologia* (1947, **123**, 265). We draw attention to the last sentence, which reads, "Many of these infections are undoubtedly milk-borne and serve to emphasize yet again the importance of providing a safe milk supply."

There is only one way of knowing whether an infection is of bovine origin or not, and that is to isolate the organism and determine its type. Our protest is against the subtle insinuation that "many are undoubtedly milk-borne" without any proof to support such a statement. Our own experience is that bovine infections are not so common now as some people suggest, and recent surveys also support our view. The dangers of contact infections with tubercle bacilli of human origin are greater than infections from unsafe milk, even in those forms of tuberculosis so persistently suggested as being milk-borne.

We welcome sensible efforts to provide a safe milk supply and believe that this can be achieved without ignoring facts or having recourse to misrepresentation or to exaggeration.—We are, etc.,

PETER W. EDWARDS.
LESLIE J. CUTBILL.

Market Drayton, Salop.

Relief of Pain in Midwifery

SIR,—The subject of analgesia in labour has recently been discussed in your columns. In this connexion it must be remembered that there are two components in the pain of labour. (1) First stage—pain due to uterine contractions. These should, like gastric contractions, be painless, and with proper training in relaxation, as advocated by Dr. Grantley Dick Read, can become so. Nevertheless, just as gastric contractions may be rendered painful by underlying pathology such as an ulcer, so may uterine contractions also in a few cases cause pain and require pethidine. (2) Second stage—pain due to distension of the perineum. Now if the skin of any other part of the body is stretched it is certainly painful; and how in the world is Dr. Read to persuade us that the perineum is less sensitive than any other portion of the anatomy? No. These pains are very real and severe and in most cases call for anaesthesia.

We must remember that 80% of women in this country are delivered by the midwife alone, so the most important thing is to find an anaesthetic which she can safely administer without medical aid. Only the Minnitt fulfils this. Striking success is obtained with this machine *provided the patient is properly trained in its use beforehand.* May I issue a plea to all doctors and midwives who have lost confidence in the Minnitt to try it again, this time giving their patients a good half-hour's antenatal introduction to it and instruction in its use? This could quite easily be done in groups at clinics. I am sure those who take the trouble to do this will find themselves amply rewarded by results.—I am, etc.,

Leek, Staffs. ANNE M. TOMS.

The Problem of Chilblains

SIR,—Dr. R. John Gourlay's comprehensive treatise on chilblains (Feb. 21, p. 336) commends itself to all interested in the study of that and other vascular disorders.

I would draw his attention to an inaccuracy in his description of cyanosis. He states that carboxy-haemoglobin is responsible for the cyanosis and that cold interferes with the formation or causes the breakdown of carboxy-haemoglobin and thus prevents the elimination of the waste products of cellular metabolism. Carboxy-haemoglobin is a relatively stable compound of carbon monoxide and haemoglobin, and as such it does not exist in normal blood.

The cyanosis is due to the presence of reduced haemoglobin, and depends fundamentally upon the absolute amount of reduced haemoglobin in the capillary blood and not upon the relative proportions of reduced haemoglobin and oxyhaemoglobin. The capillary blood must contain approximately 5 g. of reduced haemoglobin per 100 ml. blood before cyanosis will appear (Lundsgaard, C., and Van Slyke, D., *Cyanosis*, 1923, Baltimore). Carbon dioxide can form a loose carbamino compound with haemoglobin which although small in amount is important in CO_2 carriage, but which as far as I can ascertain does not contribute to the cyanotic colour of blood.—I am, etc.,

Dublin. WILLIAM P. MCKEEVER.

Dicoumarol

SIR,—In view of the recent correspondence on the control of dicoumarol therapy by prothrombin-time estimation I should like to make three points which have not hitherto been mentioned and which have been noticed in a series of 50 cases, using Fullerton's method.

1. The variability of individuals. In 40 normals, prothrombin times of 10–22 seconds were obtained (av. 16.2), but the individual himself remains fairly constant and any departure from this time due to operation or dicoumarol therapy is related to his own base line, and to it he returns in course of time. Consequently when testing reagents or when comparing abnormals with normals at least 5 normals must be taken to avoid gross errors (Aggeler *et al.*, *Blood*, 1946, **1**, 220), and for each new patient a base line should always be obtained if possible and all subsequent readings related to this.

2. In the standardization of technique, I found that I could not get reproducible results if the tubes containing plasma and "stypven" were in the 37° C. water-bath for less than 3–6 minutes—after a half-minute the shorter the time at 37° C. the quicker the reaction. At 1/2 or 1 minute one could get times of 11–12 seconds or less, but they were not constant. The prothrombin times increase with the length of time in the 37° C. water-bath till 3–6 minutes, and thereafter remain relatively constant till 12 minutes, when they again increase slightly.

3. The Wintrobe anticoagulant was found to be quite suitable for the collection of specimens, but it was most important to observe that the volume of blood added was in accordance with the amount of oxalates which had been dried into the collecting tube. If smaller volumes of blood were added to the Wintrobe anticoagulant falsely long prothrombin times were obtained.

Even if all these points are observed patients will occasionally bleed slightly with prothrombin times only 1½ times their normal, but in these cases the clotting time is prolonged in spite of a Quick's Index in the region of 40%.

It is hoped to publish a more detailed report some time in the near future.—I am, etc.,

Sector IV Laboratory,
Watford, Herts. G. A. JAMES.

Juvenile Delinquency

SIR,—In your leading article entitled "Juvenile Delinquency" (Jan. 31, p. 203) you emphasize the urgent necessity for further investigations into "the efficacy of different methods of treatment as judged by the after-histories of cases of different types." There are, I suggest, several more urgent measures, solidly founded in psychology and calculated to produce practical results far more quickly.

Virtually all juvenile delinquents are made, not born, and the principal factors in their making are the parents' attitude and the child's economic and social environment. Unquestionably the first factor is the more important. Good parents can do much to

neutralize a bad economic environment. Good material surroundings cannot dull the impact on the child of unwilling, ignorant, or contentious parents. In *Unwanted Child* I have described the havoc wrought on successive generations by parents who, because of emotional immaturity or educational or temperamental inadequacies, are unequipped to discharge their responsibilities. The most direct cause of parental shortcomings is the prevailing lack of education for the practical aspects of marriage. Until this need is met all measures to curb juvenile delinquency and the other effects of parental delinquency will be mere palliatives.

An allied measure which would have more immediate effects would be the expansion of what we might call the psychological-welfare aspects in the training of doctors, clergymen, teachers, nurses, midwives, social workers, and others whose work gives them early access to family situations and who, if adequately prepared, could detect the first signs of juvenile delinquency. Changes in school and court procedure should, I think, be instituted to compel parents to be more responsible and, failing that, to remove children from an atmosphere in which they might reasonably be expected to develop into delinquents. Adequate safeguards for the parents' rights should and could be devised.

I recommend that all children entering school should be interviewed by a psychologist. He would follow up cases in which the home situation seemed to require it. In cases where the home situation was not bad enough to justify legal intervention, a procedure might be devised under which the child would be temporarily adopted by foster parents with the consent of the actual parents.

As for corrective measures, it seems to me that short and severe punishments, followed by psychological treatment, would probably be far more effective than, say, three years of comparatively negative confinement in an approved school. Psychology cannot be wholly effective, however, if the underlying economic factors are neglected. At present little can be done to eliminate the economic causes of either adult or juvenile delinquency. But the imperativeness of their early removal must always be borne in mind.—I am, etc.,

London, W.1. EUSTACE CHESSER.

Drug Addiction

SIR,—I am in the fullest agreement with Dr. Eric Coplans (Feb. 14, p. 320), who makes a good case against the opinion so widely held that morphine addiction is incurable.

Incidentally, I have found that drug addiction is too frequently started by over-administration of barbiturates for dysmenorrhoea and menopausal nervous troubles. An aggravating factor in the position is that patients are given open prescriptions for phenobarbitone in quantities of as many as 100 tablets at a time.

I rather like Dr. Coplans's phrase "a benevolent swindle." He would appear to have enriched the language by a brilliant antithesis.—I am, etc.,

Southport. JOHN H. HANNAN.

Dogmas of Medicine

SIR,—The review by Dr. D. V. Hubble of Dr. Bernard Aschner's book *The Art of Healing* (Jan. 17, p. 103) admits the need for a new outlook in medicine and a new form of therapy, not a mechanistic one and not one preoccupied with end-results of disease processes, but with "the whole man." Yet Dr. Hubble turns down Dr. Aschner's book which contains a new (although old) outlook out of hand, making it the object of satirical remarks. He accuses the author of dogmatism. It would appear that Dr. Hubble is the dogmatist in condemning without trial methods which another doctor claims to have successfully used in a large number of cases for about 30 years.

I do not know whether it would "occupy a regiment of research workers for a lifetime" to test Dr. Aschner's contentions, but this is not a proper rejoinder nor is the complaint of these methods being "messy." They should be investigated by modern methods of science.—I am, etc.,

London, W.2. E. K. LEDERMANN.

Not Enough Fat

SIR,—The problem of production in industry is one that occupies a first place in the mind of every thinking person at the moment. The very fact that a responsible Minister has called for a greater effort from work-people and repeated the exhortation twice in six months must force everyone to realize the seriousness of the position. Yet it is surprising that no one has pointed out that to expect any significant addition to present-day output is impossible on our current rations.

A basic allowance of 1.1 oz. (31 g.) of fat, 2 oz. (57 g.) of protein, and perhaps 8 oz. (227 g.) of carbohydrates a day is bound to show its effect mentally. Irritability, lassitude, lack of concentration power, inability to work for long at a stretch full out, absenteeism due to nervous causes (which has shown such an increase)—all these are signs of fat deficiency. This is a natural course since so great a part of brain tissue is lipoid and cholesterol. Fatty replacement is therefore an essential. Energy used by the brain may not be measurable in many calories; but it produces breakdown products and repair has to go on.

The main need at the present moment is to increase our basic, readily absorbable, fats to not less than 18 oz. (510 g.) per head per week. This could be done without expenditure of dollars by buying from sterling countries. The aetiology is clear; the diagnosis made; the prognosis is grave. But the cure is there if the physician has courage enough to attempt it.—I am, etc.,

London, W.1. R. N. A. LEYTON.

School Ophthalmic Service

SIR,—I support the contention that the present school ophthalmic service is inadequate. There are two reasons for this. The school medical officer has insufficient time allotted for the general examination of the school child, and the eye examination—i.e., the reading of Snellen's types, etc.—is often delegated to the health visitor. Secondly, in doubtful or difficult cases there is no time and no special provision for special ophthalmological examination. As a result a harassed medical officer may overlook a serious eye condition. I will quote two cases from my own clinical observation while engaged as a full-time assistant M.O.H.

Case 1.—A girl aged 13 years, Welsh speaking and regarded as mentally backward or mentally deficient. This child had been examined by previous school medical officers and was considered to be unsuitable for the ordinary council school. I found that she had bilateral congenital cataracts and I considered that her intelligence was above the average. My observation about the eye condition was confirmed by the ophthalmic surgeon and this case was operated on successfully. I left the district after that, so I cannot say what her present condition is.

Case 2.—A girl aged 10 years was being examined by the health visitor for visual acuity while I carried out the usual examinations of other children at the same time in the same room. I noticed that this child missed reading the 6/18 letters with both eyes (R. and L. taken separately). The health visitor did not notice this and told me that the child's vision was 6/6. I asked the health visitor to substitute another vision test card with different lettering. I found that the child could only read 6/60 R. and L. This was an intelligent child with a good memory and she had memorized the letters in the first test card, but in reading out the letters she had completely forgotten the 6/18 line.

I quote only two cases from three years' experience as full-time M.O.H. I am quite convinced that there must be many other such cases taking the country as a whole.—I am, etc.,

Atherstone, Warwickshire. MARK BRADFORD.

The Lazy Eye

SIR,—It might be inferred from Mr. S. Black's letter (Feb. 21, p. 368) that high refractive errors *per se* are likely to lead to the development of squint. Such of course is not the case. Moreover there does not appear to be any good reason to support his plea for a routine annual refraction of children. In fact I can think of several for condemning it.

There is, however, an overwhelming case for the early and frequent assessment of visual acuity. Two conditions alone justify such a policy. (1) The problem of amblyopia can only be solved by diagnosis of the condition at a time which offers the optimum chance of cure—i.e., before the age of eight. (2) There is the important group of children who, reading 6/6 to-day, cross within a short time the borderline of emmetropia to become myopic. In too many cases the condition goes unrecognized, possibly for years.

In Kent a system is being instituted which it is hoped will cater for all the various problems arising in connexion with eye defects in children.—I am, etc.,

Tenterden, Kent. FRANCIS J. LORRIMAN.

POINTS FROM LETTERS

Where the Power Is

Dr. W. M. McINTYRE (London, W.8) writes: A leading article of *The Times* of Feb. 10 contains the following passage: "Mr. Bevan was weakest in his defence of the basic salary. He defended once again the basic salary for particular groups of doctors with special needs, a case which even the B.M.A. does not seriously question. But he utterly failed to justify the basic salary for all doctors, as Mr. R. A. Butler was quick to point out. His attitude confirms the suspicion that the universal basic salary has passed beyond rational discussion and is now a symbol." If the question of the basic salary has passed beyond rational discussion and is now a symbol, the next step is to embark on a rational inquiry into the significance of this symbol and to try to discover what, in political terms, it stands for. To be endowed with such political importance, a symbol must represent some important political aim.

Mr. Bevan's political Odyssey may therefore be worth a glance. It is contained in his own words in *Hansard* (vol. 395, col. 1615, December, 1943) and reads as follows: "When I was quite a young boy my father took me down the street and showed me one or two portly and complacent-looking gentlemen standing at the shop doors, and, pointing to one, he said, 'Very important man. That's Councillor Jackson. He's a very important man in this town.' I said, 'What's the council?' 'Oh, that's the place that governs the affairs of this town,' said my father. 'Very important place indeed, and they are very powerful men.' When I got older I said to myself, 'The place to get to is the council. That's where the power is.' So I worked very hard, and, in association with my fellows, when I was about 20 years of age, I got on to the council. I discovered when I got there that the power had been there, but it had just gone. So I made some inquiries, being an earnest student of social affairs, and I learned that the power had slipped down to the county council. That was where it was, and where it had gone to. So I worked very hard again, and I got there—and it had gone from there too. Then I found out that it had come up here. So I followed it, and sure enough I found that it had been here, but I just saw its coat tails round the corner."

In my opinion Mr. Bevan did a great service to the country as an Opposition leader, representing, as he did, the desire of the ordinary man to control his own destiny, as he has expressed it himself in words that follow immediately the passage I have transcribed: "The ordinary man in Great Britain has been spending his life for the last couple of generations in this will-o'-the wisp pursuit of power, trying to get his hands on the levers of big policy and trying to find out where it is, and how it was that his life was shaped for him by somebody else." Mr. Bevan has now the levers of big policy in his hands, and it is there more than in any other particular place that our lives may be shaped for us by somebody else. His big levers should respond to the control of the community's wishes, and the smaller levers of the B.M.A. can also be of service in meeting the people's wishes and preventing a deadlock.

State Dictatorship

Dr. J. H. POWER (Coventry) writes: Dr. Bruce Cardew (Feb. 7, p. 270) makes a number of statements that are worthy of comment. He says that doctors claim exemption from parting with a portion of our personal freedom for the sake of social security. Does he realize the difference between social security and social "Babbitry," and that the doctors are perhaps putting up the first active stand against State dictatorship? There is no commercialism in the buying and selling of practices. In fact it is a very good "insurance policy" for the patients that the doctor will put his back into his work to ensure a speedy return of his outlay. Buying a practice does not mean that the patients are bound to him. . . . Pathologists, etc., are in a rather different category to the private doctor: they are in no *personal* relationship to their patients.

The salaried worker is indeed no slave to his employer, but he has to watch his bread-and-butter. The acceptance of the present Act now—salary or no—puts us completely into the clutches of the Minister and those magic letters S.R. and O. Will the "vast majority of G.P.s be better off"? Dr. Cardew cannot have compared Mr. Bevan's *gross* figures with the Spens Committee's *net* figures, and they will have sacrificed *all* their and their patients' freedom. . . .

Individual Responsibility

Dr. NOEL JACKSON (Scarborough) writes: The present fashion seems to be a great concern about working conditions. I think most of us are aware that our patients are liable to become ill or injured at any time of the day or night, and speaking for myself I don't think that one should be too resentful of the fact. Again, I may be incorrect, but it does not seem to me to be wrong to feel a definite reluctance to hand over the responsibility for one's patients and clock on and off strictly according to a time-table. At present the ultimate and final responsibility for a patient rests with an individual doctor. This responsibility is sometimes shared with another doctor by consultation, but it certainly seems to me that if this responsibility is to shift away to comply with a policy determined by some remote body, however expert, the patient will lose something worth having. In my opinion the effect of the Act is to transfer interest and responsibility for patients from the doctor to the State. The complicated machinery of administration does not exist, in my opinion, for any other purpose. For my part, I started with a few ideals which I had when I was a student. I thought they might change after nearly ten years' practice, but they haven't, and I steadfastly refuse to swop them for a medical policy to be determined by an Act of this or any other Parliament. I have always understood that the leaders of our profession were doctors, and quite frankly I cannot see high ideals of medical progress and practice surviving for long in an administration of politicians and economists, however expert they may be.

Fighting Committee

Dr. I. LIBMAN (Heywood, Lancs) writes: I would like a special committee set up by the B.M.A. to formulate a line of attack and defence that will result in certain victory. . . .

Victory for Socialism?

MEDICUS writes: The following letter received to-day from my son at Winchester College may interest you: "We had a fine debate on Friday night. The motion was that this House considers that the Socialist Government deserves the continued support of the electorate. Speaking for the motion was Dick Crossman, M.P., and against it Brigadier Low, M.P. for Blackpool. Crossman said the middle classes were finished for ever and that the Government was going to go much further to the left. He said *à propos* Bevan and the doctors that within six months "the B.M.A. will come crawling to the Government" and that he will be very glad, as it would mean a great victory for socialism." The motion was defeated by 130 votes to 45. Still, it was nice pabulum for schoolboys!

Foreign Body in the Ear

Dr. S. GNESSEN (London, W.1) writes: Mr. Sean O'Beirn's letter (Feb. 14, p. 321) reminds me of an experience which befell me while serving in the R.A.F. Examining a candidate at an aircrew medical board I found one external auditory meatus apparently filled with wax. On proceeding to remove this with a ring-probe its hardness became apparent and it was obvious that I was dealing with something more than wax. The obstruction was removed with little difficulty and found to be a glass marble covered with wax, which the young man remembered pushing into his ear over ten years ago. He had been afraid to tell his mother for fear of a scolding, and there it had remained. On returning home, he informed a Sunday newspaper of the occurrence and I still have a cutting describing the event! In this case, too, there was absence of pain, discharge, and tinnitus, and no marked impairment of hearing.

Dogs and Poliomyelitis

Dr. J. W. SHACKLE (London, W.1) writes: I have read with much interest your correspondence on this subject. My own dog (a dachshund) recently had an attack of a mysterious disease with a sudden onset, consisting of acute pain and tenderness of diffuse distribution; his efforts to be comfortable were heart-rending to watch. This was followed in about twelve hours by a flaccid paralysis from the waist down, with apparent retention of urine for twenty-four hours, at the end of which time there was some return of movement in one leg, followed in a further twenty-four hours by some return of movement in the other. At the end of a week he was almost completely recovered, but on my going to pat him one evening he gave a loud cry and had a complete return of the condition, followed as before by a flaccid diplegia from the waist down. He recovered much more slowly this time and is to this day (a month later) not so "limbersome" as before. I have since heard from friends of a similar attack in their own dog, the paralysis in the relapse being much more extensive, necessitating his destruction as he was unable to swallow.

Sex Instruction

Mr. H. J. WOODLIFF (Edinburgh) writes: I read Dr. R. T. Bevan's article on "What the Medical Practitioner wants to Know" (Feb. 14, p. 294) with interest and particularly his figures and comments on the letters dealing with sex problems. As a medical student I find it distressing that sexology is not taught fully as a separate subject during the medical education of doctors. Surely it is now time that the universities and medical schools set up a department of sexology with a full-time head. This department could carry out the research that is needed in this subject as well as giving a course of instruction in sexology. Postgraduate diplomas could be given after a course at the department so that young doctors wishing to specialize in this subject could get a firm basis for their subsequent work. Far too many doctors are ignorant of modern advances in sexology and do not know how to deal with patients asking advice on various subjects of a sexual nature.

Obituary

SIR H. LINDO FERGUSON, C.M.G., M.D., F.R.C.S.I.

New Zealand has lost its oldest and most distinguished medical man with the death of Sir Lindo Ferguson on Jan. 22 at the age of 90. He served the medical school of New Zealand as a teacher of ophthalmology for over fifty years, and for twenty-three years as dean of the Faculty. Throughout this period he gave himself with the greatest energy and devotion to the task of establishing the medical school on sound foundations.

Henry Lindo Ferguson was a man of exceptional intellectual ability, winning a gold medal in his Arts course at Trinity College, Dublin, in 1876 before proceeding to a brilliant medical course at that College. He travelled to New Zealand as medical officer on the s.s. *Takapuna* on her first voyage to New Zealand late in 1883 and immediately set up in practice as an ophthalmic surgeon, the first in New Zealand. On Jan. 1, 1884, he opened the ophthalmic department at the Dunedin Hospital, a department which he continued to control until his retirement from active practice in 1936. The Dunedin Hospital authorities marked this long period of service by naming the new ophthalmological ward the Lindo Ferguson Ward, and the Otago University Council by creating him emeritus professor of ophthalmology in the university.

Sir Lindo's greatest achievement, however, was in the development of medical education, to which he devoted his great gifts of creative vision, breadth of outlook, administrative ability, and human understanding. He has left a profound impression on the teaching and practice of medicine in New Zealand. He was also a founder of the Australasian College of Surgeons. At the twenty-first annual conference of the College held in Dunedin on Jan. 27, Prof. Gordon Bell, president of the Royal Australasian College, paid the following tribute to his memory: "He was a founder of the College and its oldest Fellow, and I hoped that he would adorn our meeting with his distinction of person, his undiminished intellectual supremacy, and the dignity of an exceptionally long life devoted to the highest interests of our calling, but that was not to be. It is the happy lot of few to come to a young country as a young man, to spend 65 years in it, to establish in the southern hemisphere a new specialty, that of ophthalmology, and at the same time to carve for himself a unique position in the hearts of his fellow citizens through enriching his chosen city by the depth and variety of his interests in its intellectual life. On the professional side he introduced into this young university centre an old-world charm and dignity, a sincerity of purpose, a disregard for pecuniary considerations, and a burning zeal for educational advancement which, in the course of half a century, brought its own reward. He is in truth the architect of our Otago Medical School in its present form, and happily he lived to see most of his cherished purposes come true, and to know that he occupied an enduring place in the affections of his colleagues and of his pupils."

Sir Lindo Ferguson was awarded the C.M.G. in 1918 and knighted in 1924. He was a member of the New Zealand Board of Health, and he was president of the New Zealand Branch of the British Medical Association in 1919.

P. E. H. ADAMS, M.B., F.R.C.S.

Philip Edward Homer Adams, who died on Feb. 9 at the age of 68, was a son of the late Dr. G. E. D'Arcy Adams. He was educated at Lancing and Exeter College, Oxford, and later was a student at the London Hospital. After graduating he took the F.R.C.S. in 1905 and the diploma in ophthalmology in 1910. He was connected with the Oxford Eye Hospital, which was founded by his uncle, Robert Doyne, for over fifty years, and first came there while still a student in 1896. He was a clinical assistant in 1904; assistant to the honorary staff in 1905; appointed a surgeon in 1910; and from 1913 to 1941 he was a honorary surgeon and Margaret Ogilvie reader in ophthalmology to the University of Oxford. Since 1912 he had been consulting ophthalmic surgeon to the Radcliffe Infirmary. Mr. Adams was in private practice in Oxford for over thirty years and retired in 1941.

The Oxford Ophthalmological Congress was founded by Mr. Adams among others. He was its Master from 1926 to 1928, and deputy master from 1929 to 1942. He had been a member of the B.M.A. since 1906, and was president of the Section of Ophthalmology when the Association met at Oxford in 1936. He was president of the Ophthalmological Section of the Royal Society of Medicine in 1944 and in 1945. Since his retirement in 1941 Mr. Adams had been living at Theberton, Suffolk. He leaves a widow, a son, and two daughters.

Dr. ROLF CREASY, who was the last surviving son of the well-known historian the late Sir Edward Creasy, author of *The Fifteen Decisive Battles of the World*, died in London on Feb. 20. Dr. Creasy was a student of Guy's Hospital and qualified there in 1885. He had been associated for many years with the All Saints' Hospital for Genito-Urinary Diseases, and was at one time clinical assistant to the West London Hospital and on the staff of the Royal Victoria Hospital, Ascot.

Dr. A. Hope Gosse writes: The death of Rolf Creasy will be a sad loss and deeply felt by his many friends, and especially by the members of the Medical Golfing Society. To many of them, in fact, the society was Rolf Creasy and he was the society. He was its founder towards the end of the last century and was its secretary for an unbroken period of half a century, a unique form of service to colleagues. He retired from the office of secretary in its jubilee year in 1947 and the members marked the occasion with a presentation. The fifty-first annual meeting and dinner happened to fall on the very eve of his death and an episode at the dinner well illustrated the purpose Rolf had in mind when he founded the society and helped to make it flourish, for a new silver challenge cup was presented by one of the members of the society "as a mark of appreciation of the happy days and good fellowship he had enjoyed at very many meetings of the society." Rolf Creasy had achieved one of his ambitions and established a tradition.

Dr. WILLIAM HENRY DICKINSON, who died at his home in Hoylake on Jan. 31, was the son of Edward Harriman Dickinson, M.D., F.R.C.P., of Liverpool, in which city he was born in 1874. After education at Charterhouse School and Trinity College, Cambridge, he went on to St. George's Hospital for his clinical work, and there he qualified M.R.C.S., L.R.C.P. in 1903. He was house-physician first at the Northern Hospital, Liverpool, and later at St. George's Hospital. He served in France with the 6th London Field Ambulance of the 47th Division from March, 1915, to April, 1919, with the rank of captain. As a young man his singular good looks and engaging manners made him a great favourite not only with his contemporaries but with his seniors. That good judge and great teacher, the late Marmaduke Sheild, was much attached to him. Their mutual love of golf was, naturally, another link. Nor did social success in any way spoil his sunny nature, for he remained throughout one of the most unassuming of men, and his friends knew that he was as straight as a die. Dr. Dickinson was never married.—H. R.

Medico-Legal

ATTRIBUTABLE TO WAR SERVICE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The appeal of an ex-Serviceman claiming a pension for a disability due to hernia gave Mr. Justice Denning an opportunity recently[1] of stating how the courts should decide whether a disease is attributable to war service or only aggravated by it. The appellant had earlier had a left inguinal hernia brought on by accident before the war, but he claimed in respect of a hernia on the right side which had arisen after war service. The Medical Services Division of the Ministry rejected the claim, holding that it was a consequence of a developmental weakness of the musculature. The tribunal said that it had been preceded by a cough which the claimant had while in the Service, and was not attributable to war service.

To be attributable to service a disease must, said the judge, arise during the service, which must be one of the causes of its arising. It was often difficult to say when a disease, especially an insidious one, arose. If the Minister asserted

[1] *Marshall* v. *Minister of Pensions*, 1947, 2 All E.R., 706.

that it arose before the service, the burden was on him to prove this, and that burden was not discharged by merely proving a predisposition or susceptibility. A disease would in its natural progress cause illness or incapacity even though no other cause might operate; a susceptibility might never become injurious unless some other cause operated. On the question of whether in a given case war service was one of these causes the medical advisers of the Minister used to divide causes into two classes—predominant and contributory—and say that the disease was attributable to the predominant cause and aggravated by the contributory cause. For instance in hernia, where the predominant cause was the inherent weakness in the wall of the abdomen and a contributory cause might be an injury in war service, they used to hold that the hernia was not attributable to war service but was aggravated by it. Many decisions, said Mr. Justice Denning, had shown that approach to be wrong. If one of the causes was war service, the disease was attributable to war service, even though it might also be attributable to other and more powerful causes. The courts therefore approach the problem from much the same angle as a workman's case, in which compensation is awarded if the employment has contributed materially to the condition.

Medical Notes in Parliament

University Grants

Replying to Sir ERNEST GRAHAM-LITTLE on Feb. 20 Sir STAFFORD CRIPPS said that provision would be made for recurrent grants to universities for general purposes and for medical and dental education on the scales announced by Mr. Dalton in his statement of March 10, 1947. Since that date responsibility for aiding agricultural and veterinary education had been assumed by the Treasury. After the present academic year the teaching hospitals would be financed under the National Health Service Act, and the need for Treasury grants to them would cease. Provision for such grants could therefore be reduced to £250,000. As regards non-recurrent grants, experience had shown that the rate of expenditure on capital developments was somewhat over-estimated last year. He proposed this year to provide £2,000,000 for this purpose. Accordingly the total amount which Parliament would be asked to vote for 1947–8 was £11,880,000.

Thames Water and Radioactivity

On Feb. 24 Mr. G. R. STRAUSS told Major BEAMISH that thorough precautions were being taken by the Ministry of Supply to ensure that the Thames water used at the atomic energy research establishment at Harwell was returned to the river free from risk of harmful radioactivity. The precautions were adopted on the advice of the Medical Research Council's research committee on the medical and biological applications of nuclear physics. A certain amount of radioactivity in drinking-water could be tolerated by human beings. The tolerance laid down by the Medical Research Council for the Thames water was such that medical and biological effects due to the consumption of water during the life span of human beings would be negligible.

Remuneration of Specialists

Sir ERNEST GRAHAM-LITTLE on Feb. 26 told the Minister of Pensions that the rates of remuneration of the specialist medical officers employed by his Department were much below those fixed by the British Medical Association as a minimum and accepted by most hospitals. Mr. GEORGE BUCHANAN replied that rates of remuneration of specialists employed by his Department on a part-time basis for hospital work were in general accord with the rates agreed by the British Medical Association with appropriate authorities. The rates payable to specialists and consultants for sessional medical board work were the subject of discussion between his Department and the B.M.A.

Research.—In 1946–7 approximately £130,000 of the Parliamentary grant to the Medical Research Council was used for research projects mainly of a clinical nature. The remainder was expended on projects mainly involving laboratory work and on administration.

Vaccination.—Mr. BEVAN states that the National Health Service Act does not require the issue of regulations governing the carrying out of vaccination. It is intended, however, to make available to doctors authoritative medical opinion about up-to-date methods of vaccination.

Married Women Doctors.—Mr. HOUSE was assured by Mr. BEVAN on Feb. 26 that married women doctors would be considered for appointments as house-physicians and house-surgeons in hospitals under the National Health Act.

Diphtheria Immunization.—From 1940 to June 30, 1947, approximately 6,875,000 children under the age of 15 in England and Wales were immunized against diphtheria through local authority arrangements.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following medical degrees were conferred by proxy on Feb. 14:

M.D.—H. M. Woodman.

M.B., B.CHIR.—M. G. H. Lewis, K. Ll. Williams, J. H. Angel, G. M. Woodwark, J. S. Jenkins, J. D. G. Turner.

The following candidates have been approved at the examination indicated:

M.CHIR.—L. L. Bromley, R. N. Jones.

UNIVERSITY OF MANCHESTER

The following appointments are announced: *Reader in Human Physiology,* A. A. Harper, M.B., Ch.B. *Lecturer in Pathology,* John Wainwright, M.B., Ch.B. *Assistant Lecturer in Anatomy,* E. P. Samuel, M.B., Ch.B. *Assistant Lecturer in Pathology,* John Ball, M.B., Ch.B. *Lecturer in Medical Ethics and Conditions of Medical Practice,* D. R. Goodfellow, M.D. *Honorary Clinical Lecturer in Child Psychiatry,* Winifred M. Burbury, M.B., B.S., D.P.M. *Clinical Tutor in Child Health,* R. I. Mackay, M.B., Ch.B., D.C.H. *Surgical Tutor in Orthopaedic Surgery,* J. K. Wright, M.B., Ch.B. *Lecturer and Demonstrator in Anaesthetics in the Dental Department,* Tom Dinsdale, M.B., Ch.B., D.A.

UNIVERSITY OF BIRMINGHAM

John Rupert Squire, M.B., B.Chir., M.R.C.P., has been appointed Leith Professor of Experimental Pathology and Director of the Department of Pathology in the University, and John Washington Orr, M.D., M.R.C.P., to the second Chair of Pathology.

UNIVERSITY OF LEEDS

The following appointments are announced: D. N. Ross, M.D., F.R.F.P.S., Research Fellow in Rheumatism; E. C. Allibone, M.D., Clinical Lecturer in Paediatrics; W. Goldie, M.B., Ch.B., Lecturer in Pathology (part-time).

UNIVERSITY OF SHEFFIELD

The following appointments are announced: C. E. Davies, B.M., B.Ch., M.R.C.P., Research Assistant in Clinical Medicine; T. Stapleton, B.M., B.Ch., M.R.C.P., D.C.H., Tutor in Child Health; A. Jordan, M.B., B.S., M.R.C.P., Honorary Lecturer in Clinical Biochemistry.

Dr. Margaret H. Miller has resigned from the post of Research Assistant in Medicine, and the Council has thanked her for her services to the University.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Through an oversight the names of following members of the medical profession were omitted from the list of Fellows in Dental Surgery printed in the *Journal* of Feb. 21 (p. 373): G. B. Pritchard, M.R.C.S., L.R.C.P., George T. Hankey, O.B.E., M.R.C.S., L.R.C.P., Prof. W. E. Herbert, M.R.C.S., L.R.C.P., Prof. M. A. Rushton, M.D., A. E. W. Miles, M.R.C.S., L.R.C.P., Prof. J. Boyes, F.R.C.S.Ed., and Prof. A. I. Darling, M.R.C.S., L.R.C.P.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the meeting of Countil of the College, held on Jan. 24, Sir William Fletcher Shaw agreed to accept an invitation from the Members of the College in Canada to visit them on behalf of the College. He hopes to leave England in April and will visit various centres to discuss with the Fellows and Members of the College matters affecting the practice of obstetrics and gynaecology in the Dominion.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	54	5	21	2	—	78	2	22	4	—
Deaths		3	—				1	—		
Diphtheria	211	14	53	17	8	211	23	58	23	6
Deaths	4	—	—	—	—	3	—	1	—	—
Dysentery	164	25	46	—	—	41	6	19	—	—
Deaths				1	—					—
Encephalitis lethargica, acute	1	—	—	—	—	5	—	3	1	—
Deaths		—					—		—	
Erysipelas			51	6	3			47	6	1
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				24					26	
Deaths	46	5	9	9	2	80	4	26	10	—
Measles*	6,179	649	802	107	18	16,749	597	303	62	489
Deaths†			2	1	—	15	2	1	—	2
Ophthalmia neonatorum	45	4	19	—	1	59	2	17	—	1
Deaths										
Paratyphoid fever	2	—	1 (B)	—	—	1	1	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	871	40	15	3	4	1,404	80	27	25	7
Deaths (from influenza)‡	16	—	3	—	—	163	19	6	7	8
Pneumonia, primary			228	25				296	46	
Deaths	268	40		18	11		106			23
Polio-encephalitis, acute	4	—				—	—			
Deaths							—			
Poliomyelitis, acute	28	3	3	—	1	8	—	—	5	—
Deaths§	3	—					—			
Puerperal fever		—	10		1		2	6		—
Deaths										
Puerperal pyrexia‖	104	13	8	1	—	160	9	13	1	—
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,925	150	328	32	46	1,051	67	240	9	41
Deaths†			—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	7	2	—	11	1	5	—	—	5	1
Deaths	—	—	—	1	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,576	193	50	19	—	1,964	180	381	81	32
Deaths	10	2	—	1	—	14	1	4	3	3
Deaths (0–1 year)	362	49	53	43	14	579	70	113	47	24
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,954	749	643	234	142	8,091	1359	880	366	237
Annual death rate (per 1,000 persons living)			13·0	14·6				18·3		
Live births	8,193	1382	952	443	249	10,195	1620	1233	481	278
Annual rate per 1,000 persons living			19·2	27·7				24·8		
Stillbirths	236	32	28			288	41	41		
Rate per 1,000 total births (including stillborn)			29					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Cases of Smallpox

The figures tabulated below are provisional but effect has been given to any corrected diagnosis notified to date.

Age Groups	1946	1947
0–	3	2
5–	8	6
15–	24	35
45–	10	14
65 and over	2	26
Age unknown	9*	—
Total all ages	56	83

* Notifications from Port Health Districts.

In 1946 there were 14 deaths from smallpox, and for 1947 the provisional figure is 15.

Discussion of Table

In *England and Wales* there was an increase of 583 in the notifications of measles and a decrease of 141 in the notifications of acute pneumonia.

The incidence of measles has been almost doubled in the past month. The largest rises during the week were London 138, Norfolk 116, Middlesex 109, and Northamptonshire 104. Notifications of acute pneumonia fell in every region except the south-east, where a slight increase was reported; the largest decrease was Lancashire 35.

Although the notifications of whooping-cough were only 4 more than in the preceding week there were considerable fluctuations in the local trends; the largest increases were Warwickshire 59 and Nottinghamshire 32, and the largest falls were Essex 45 and Kent 34. No appreciable changes occurred in the local returns of diphtheria. The chief features of the returns for scarlet fever were a rise of 40 in London and a decrease of 28 in Lancashire.

The chief centres of dysentery were London 25; Lancashire 56 (Liverpool C.B. 15, Oldham C.B. 14, Preston C.B. 14); and Yorkshire West Riding 43 (Sheffield C.B. 15, Bingley U.D. 11). The largest returns of poliomyelitis were 3 in London and in Kent; no administrative area had more than one case.

In *Scotland* the only large fluctuations in the notifications of infectious diseases were decreases for acute primary pneumonia 51 and for measles 29. Notifications of dysentery increased by 7, and the chief centres of this disease were Edinburgh 14, Glasgow 9, and Aberdeen 8.

In *Eire* increases of 10 in the notifications of diphtheria and diarrhoea and enteritis were recorded, and there were decreases in the incidence of measles 14 and whooping-cough 17. Of the 11 cases of typhoid fever 8 were notified in the U.D. and R.D. of Dundalk, Co. Louth.

In *Northern Ireland* no case of whooping-cough was notified from Belfast C.B., but the incidence of measles and scarlet fever in this city remained practically unchanged.

Week Ending February 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,828, whooping-cough 2,552, diphtheria 180, measles 7,209, acute pneumonia 788, cerebrospinal fever 36, acute poliomyelitis 27, dysentery 191, paratyphoid 3, and typhoid 1.

A women's conference arranged by the London Labour Party at Caxton Hall on Feb. 25 was addressed by Mr. R. Stamp, chairman of the Statutory Health Committee of the London County Council. In the course of his address Mr. Stamp said, "The L.C.C. has ample evidence that the service provided by a large number of doctors in part- and full-time employment with public authorities, described by the B.M.A. as 'Civil Service doctors,' do not suffer interference with their clinical service to the patient, and that at all times the relationship between doctor and patient is confidential and strictly in accordance with professional practice." Continuing, he expressed the opinion that very few doctors would be so unwise as to throw away their goodwill and allow others to take their patients when the public were asked to select their doctor under the new Service. "Any who do carry their opposition too far will within a few weeks be very much poorer, and I hope wiser, men." According to a report in *The Times*, Mr. Stamp was later asked if there would be some recognized channel for complaints of any abuse of the new Service. Mr. Stamp replied that there was always the Post Office.

Medical News

Writs for Libel

The British Medical Association has issued writs for libel against Dr. S. W. Jeger, M.P., Dr. Somerville Hastings, M.P., Dr. L. Comyns, M.P., and Dr. H. B. Morgan, M.P., in respect of a letter from them published in certain newspapers touching on the conduct of the plebiscite recently carried out by the B.M.A. The Association has taken this step against four doctors with great reluctance, but has felt constrained to do so since it feels that the honesty of the Association has been publicly impugned.

Greetings from Illinois

The Council of the Illinois Medical Society resolved, at a meeting held in Chicago recently, that official interest, sympathy, and a message of understanding be sent to the members of the British Medical Association. "Since the passage of the National Health Service Act in Britain, the medical profession in this nation has realized that our confrères in Britain are faced with the most important issue in the whole of its history. . . . We see in the fight you have been forced to wage in your own behalf the forecast of what the profession in this country may face if our Federal legislature passes any of the several Bills of a similar nature which have been introduced for consideration. As a component part of the American Medical Association the members of the Illinois State Medical Society desire to express a feeling of confidence in the members of the British Medical Association, and wish to extend official sympathy and understanding to all."

Tudor Edwards Memorial Fund

The Tudor Edwards Memorial Fund will be closed on March 31. Until that date donations may be sent to the treasurer of the fund, Lord Courtauld-Thomson, at Brompton Hospital, London, S.W.3.

Surgeon-General of U.S. Public Health Service

Dr. Leonard A. Scheele has been nominated as Surgeon-General of the U.S. Public Health Service and will succeed Dr. Thomas Parran in that office on April 6. Dr. Parran became Surgeon-General of the Service in July, 1936, succeeding Dr. Hugh S. Cumming.

Lecturing in Hungary

Prof. R. Platt, Professor of Medicine in the University of Manchester and Physician to the Manchester Royal Infirmary, is lecturing in Hungary under the auspices of the British Council on "Recent Advances in the Study of Kidney Diseases and High Blood Pressure."

Italian Cardiologist Visits Britain

Prof. D. Arrigo Poppi, Cardiologist at the Pathological Institute of Bologna, is in Britain on a short visit under the auspices of the British Council in order to study the methods adopted for prevention and treatment of rheumatic diseases, especially in children.

Training of Nurses

The British Hospitals Association has submitted a Memorandum on the Report of the Working Party on the Recruitment and Training of Nurses to the Minister of Health. Though admitting that the Report has value, the B.H.A. Memorandum observes that as a practical instrument it is seriously depreciated by its "concentration on a long-term policy which can only be described as Utopian." Discussing the figures of wastage during training, the B.H.A. rejects some of the inferences drawn by the Working Party from its data, many of which relate to abnormalities caused by the war; indeed the B.H.A. maintains that the principal purpose of the preliminary course is to enable the schools to eliminate unsuitable candidates or for the candidate herself to withdraw if she wishes. The Working Party's emphasis on excess or harshness of discipline is thought to be exaggerated. The B.H.A. suggests that every hospital should have a small advisory committee of lay members to interview students contemplating resignation. The B.H.A. emphatically disagrees with the Working Party's suggestion that training time is unduly lengthened by excessive domestic work and unnecessarily repetitive nursing duties. It criticizes the Working Party's proposals for training and advocates a three-year course. In a concluding section on administration the B.H.A. states: "We do not agree that the nursing services of the community ever could or should be effectively administered by the Minister of Health."

Marriage Guidance

The Home Secretary has appointed a departmental committee to consider in what way marriage guidance can be most advantageously developed in England and Wales if assisted by Exchequer grants, and to advise how these grants could properly be made. The chairman is Sir Sydney Harris, who is British Representative on the Social Commission of U.N., and the members are: Mrs. E. G. M. Barlas, Mr. G. E. Haynes, Sir Edwin Herbert, Dr. Edward Larkin, and Miss W. M. Goode.

Scholarships at Foreign Universities

Scholarships for the academic year 1948–9 will be offered to students and graduates of British universities and colleges by the Governments of a number of foreign countries, including Belgium (8 scholarships), Hungary (6), the Netherlands (6), Sweden (3), and the University of Teheran, Persia (2). The scholarships are intended for postgraduate study. Two scholarships have also been offered by the University of Cologne and two by the University of Munster. Scholarships may also be offered by the Governments of Czechoslovakia, Finland, and Norway. Those interested in scholarships to Belgium, Hungary, the Netherlands, Sweden, and Persia should apply for full particulars as soon as possible to the Controller of the Education Division, the British Council, 3, Hanover Street, London, W.1. Those interested in scholarships to Czechoslovakia, Finland, Norway, and Germany should send a stamped addressed envelope to the British Council. Scholars will be selected by a board including members of the British Council Medical Advisory Panel and representatives of the country concerned.

Film on Curare

A film on *d*-tubocurarine chloride, prepared by the Wellcome Film Unit, received its first showing at the Wellcome Research Institution on Feb. 19. In colour, the film demonstrates the effect of the drug both experimentally and in surgical practice. It is now available for exhibition to practitioners and students. Application for copies should be made to Wellcome Film Unit, 183–193, Euston Road, London, N.W.1.

Corsets Released

Restrictions on the supply of corsetry by manufacturers have been withdrawn. In order to ensure that anyone who needs a surgical support for medical reasons shall be able readily to obtain it, the Ministry of Health will continue to make arrangements for the supply of special materials to the manufacturers. A medical certificate covering the need for the appliance will be required so that the medically necessitous cases may be readily identified and supply assured. Such certificates, given and signed by medical practitioners, should state (*a*) the date, (*b*) the name and address of the doctor and of the patient, and (*c*) the nature of the condition necessitating supply of the appliance. Giving the certificate is not restricted to certain named conditions, and it is not necessary to send certificates to the Board of Trade for endorsement. When the practitioner does not wish to disclose the nature of the condition to the patient, the certificate should be sent direct to the Supplies Division of the Ministry of Health, Whitehall, London, S.W.1, with a separate signed document stating the patient's name and address and giving a description of the type of appliance required (for the guidance of the manufacturer). The certificate will be retained by the Ministry of Health. The second document will be endorsed and returned to the patient, who will then be able to use it as a certificate to obtain a surgical support or corset.

Vivisection

The Home Secretary has recently told a deputation of anti-vivisectionists that he would consider their suggestion to appoint a Royal Commission to inquire into vivisection.

Wills

Major-General Sir Thomas Joseph O'Donnell, late D.M.S., India, left £3,540. Sir Frederic Rowland Mallett, who practised in Bolton for many years, left £31,976.

COMING EVENTS

Chelsea Clinical Society

Chelsea Clinical Society will hold a general meeting at the South Kensington Hotel, 47, Queen's Gate Terrace, S.W.7, on March 9 at 7 for 7.30 p.m. Discussion on "Medical Experiments in Nazi Germany" to be opened by Major Keith Mant, R.A.M.C., of the British War Crimes Group, B.A.O.R.

Cutter Lecture on Preventive Medicine

The Harvard University School of Public Health announces that Dr. William N. Pickles (Medical Officer of Health, Aysgarth Rural District, Yorkshire) will deliver the Cutter Lecture on Preventive Medicine on April 12, at Boston, Massachusetts, U.S.A. Dr. Pickles has chosen as his subject, "Epidemiology in Country Practice." The Cutter Lectures on Preventive Medicine have been held annually since 1912, having been established by Dr. John Clarence Cutter, of the class of 1877, Harvard Medical School. The medical profession, medical and public health students, and others interested are invited to attend.

APPOINTMENTS

Col. H. A. Sandiford, *M.C.*, M.B., Ch.B., D.P.H., A.M.S.(ret.), has been appointed Medical Director of the Empire Medical Advisory Bureau, B.M.A. House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—March 8, 8.30 p.m. *"The Aetiology of the Common Cold and Influenza."* Discussion to be introduced by Dr. C. H. Andrewes, Prof. C. H. Stuart-Harris, and Dr. Freddy Himmelweit.

Tuesday

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—March 9, 5 p.m. *"Concerning Megalocytic Anaemias."* Oliver-Sharpey Lecture by Dr. J. F. Wilkinson, F.R.C.P.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.— March 9, 5 p.m. *"Physio- and Electro-Therapy,"* by Dr. R. T. Brain.

UNIVERSITY COLLEGE, LONDON: DEPARTMENT OF PHYSIOLOGY, Gower Street, W.C.—March 9, 5 p.m. *"Some Aspects of General Physiology,"* by L. E. Bayliss, Ph.D.

Wednesday

ROYAL SOCIETY OF ARTS, John Adam Street, Adelphi, London, W.C.—March 10, 2.30 p.m. *"The Trade and Technical Press,"* by Mr. R. E. Dangerfield.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—March 10, 3.30 p.m. *"The Disorders of Childhood"* (Illustrated), by Dr. D. W. Winnicott.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—March 10, 8 p.m. *Annual Extraordinary General Meeting.*

Thursday

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—March 11, 5 p.m. *"Concerning Megalocytic Anaemias."* Oliver-Sharpey Lecture by Dr. J. F. Wilkinson, F.R.C.P.

ANGLO-AUSTRIAN SOCIETY.—At British Council (Theatre), 6, Hanover Street, London, W.1, March 11, 6.30 p.m. *"The World Food Situation,"* by Prof. J. R. Marrack. Members and friends are invited.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—March 11, 5 p.m. *"Diseases of the Hair,"* by Dr. W. J. O'Donovan.

MEDICAL SOCIETY OF LONDON.—At Claridge's, Brook Street, London, W., March 11, 7.30 p.m. for 7.45 p.m. 168th Anniversary Dinner.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C.—March 11, 7.30 p.m. *"The Work of the Medical Staff of the Ministry of Health."* by Sir Weldon Dalrymple-Champneys, Bt., D.M., F.R.C.P., Deputy Chief Medical Officer, Ministry of Health.

SOCIETY OF CHEMICAL INDUSTRY: FOOD GROUP.—At Welbeck Hotel, Nottingham, March 11, 7.15 p.m. Joint meeting with the Nottingham Section of the Society. Paper: *"Physical Chemistry of Food with Particular Reference to Bakery Products,"* by W. Cunliffe, B.Sc., F.R.I.C. A discussion will follow.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, S.W.—March 11, 4.30 p.m. *Psychiatric lecture-demonstration,* by Dr. D. Curran.

Friday

BIOCHEMICAL SOCIETY.—At Department of Biochemistry, University College, Gower Street, London, W.C., March 12, 2 p.m. Annual general meeting. Papers will be read.

INSTITUTE OF ALMONERS.—At Conway Hall, Red Lion Square, London, W.C., March 12, 6 p.m. Annual General Meeting. Address by the Rt. Hon. Aneurin Bevan, Minister of Health.

LONDON CHEST HOSPITAL, Victoria Park, E.—March 12, 5 p.m. *"The Indications for Bronchoscopy in Chest Diseases,"* by Dr. H. V. Morlock.

ROYAL INSTITUTE OF PHILOSOPHY, University Hall, 14, Gordon Square, London, W.C.—March 12, 5.15 p.m. *"Philosophy and Medicine: Philosophy and Psychiatry,"* by Prof. Aubrey Lewis.

Saturday

NUTRITION SOCIETY.—At London School of Hygiene and Tropical Medicine, Keppel Street, W.C., March 13, 10 a.m. *"Results of Recent Investigations into the Nutritional Status in Great Britain."* Whole-day conference.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Chance.—On Feb. 16, 1948, to Phoebe Chance, M.R.C.S., L.R.C.P., wife of James H. O. Chance, M.R.C.S., L.R.C.P., 418, Westdale Lane, Mapperley, Nottingham, a daughter—Rosemary Ann.

Crichton.—On Feb. 20, 1948, at Brackenlea Nursing Home, Shawford, Winchester, to Jean (*née* Akerman), wife of Squadron Leader David Crichton, M.B.E., R.A.F., a daughter.

Ferguson.—On Feb. 18, 1948, at Cloverley Nursing Home, to Dr. and Mrs. Alan Ferguson (*née* Kathleen Smethurst), a son.

Hennessy.—On Feb. 19, 1948, at Fairfield Nursing Home, Doncaster, to Doris, wife of Dr. Jeremiah D. Hennessy, Flight Lieutenant, R.A.F.V.R., a daughter.

Hopkins.—On Feb. 24, 1948, to Betty (*née* Morrison), wife of Dr. Ian B. Hopkins, Ellon, Aberdeenshire, a daughter.

Woolf.—On Feb. 18, 1948, at the Clovelly Maternity Home, Finchley, N., to Kathorn, wife of Lieutenant Douglas L. Woolf, R.A.M.C., The Avenue, Highams Park, a daughter.

MARRIAGE

Kelleher—Barrett.—On Jan. 7, 1948, at Kinsale, Daniel M. Kelleher, M.B., B.Ch., to Mary Barrett.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Melaena Neonatorum and Peptic Ulcer

Q.—*In Cecil's "Textbook of Medicine," 7th ed., 1947 (p. 797), Walter L. Palmer states that "in about 50% of the cases melaena neonatorum is due to peptic ulcer." In the same book (pp. 1104–5) George R. Minot claims that in the newborn "melaena due to ulcer is seldom seen," the condition being due to vitamin-K deficiency. Contradictory statements in textbooks written by various authors are by no means rare, but usually they are a matter of opinion and not a matter of fact. One must assume that both Palmer and Minot base their conclusions on post-mortem findings, and the evidence obtained in the dissecting-room is not a matter of opinion. As both treatment and prognosis are so utterly different, depending on which of these views is correct, I would be glad to have an up-to-date authoritative opinion from a third expert.*

A.—Post-mortem findings do not provide a satisfactory answer to this query, as the great majority of cases of haemorrhagic disease of the newborn recover with treatment. It is unlikely that this is equally true of cases of duodenal ulcer occurring in the neonatal period, and the condition, though it may be suspected during life, can seldom be confirmed except at necropsy. Most paediatricians would agree that haemorrhagic disease of the newborn is a much commoner cause of melaena during the first week of life than is duodenal ulcer, though this opinion is largely based on the clinical diagnosis of haemorrhagic disease being confirmed (*a*) by prompt response to treatment with vitamin K or transfusion, or (*b*) by the occurrence of haemorrhages elsewhere than in the gut, in the absence of sepsis, and by the rarity of ulcer as a post-mortem finding. The prothrombin level, though reduced in haemorrhagic disease, is not conclusive, since it is normally reduced during the first week of life and may be so when an ulcer is present. Neither the bleeding nor clotting time is consistently abnormal in haemorrhagic disease. The following figures, from the practice of a maternity hospital having 2,000 to 4,000 deliveries a year, and where post-mortem examination is carried out on almost all neonatal deaths, are given as an indication of the relative frequency of the two conditions, with the above qualifications.

During the years 1939–47 inclusive 44 cases of haemorrhagic disease were observed in which the diagnosis was considered proved. Of these, 36 showed melaena as a presenting symptom. Of five fatal cases—four with melaena and one without—post-mortem examination showed cerebral haemorrhage in three; one was a premature infant weighing 3 lb. 5 oz. (1.5 kg.); and in one (which had not shown melaena but in which the stomach was filled with blood) duodenal atresia and mongolism were present. No ulcer was present in any of these cases. During the same period one duodenal ulcer and one pyloric ulcer associated with ectopic pancreatic tissue were observed in all post-mortem examinations of newborn infants.

The disparity between the incidence of the two conditions is probably considerably greater than indicated by the above figures, since doubtful cases of haemorrhagic disease (in which, for instance, cerebral haemorrhage in the absence of bleeding from the gut was the principal post-mortem finding) have been excluded, whereas no example of ulcer is likely to have been missed at post-mortem examination.

Sulphanilamide Powder in Nasal Catarrh

Q.—*There are certain preparations on the market for the treatment of nasal catarrh, sinusitis, etc., which contain from 0.4% to 5% sulphanilamide powder. In view of the growing concern about developing sulphonamide-resistant strains of bacteria, is this a proper and valuable use of sulphanilamide?*

A.—Any indiscriminate use of such drugs is to be deprecated. On the other hand, the use of sulphonamide snuffs,

with or without penicillin, is often effective in eliminating staphylococci, haemolytic streptococci, meningococci, and diphtheria bacilli from the nose or nasopharynx, particularly in carriers and when the sinuses are not involved (it is doubtful whether the efficacy of this treatment extends beyond the main cavity). Preferably, therefore, a bacteriological examination should precede treatment, as well as a clinical examination to determine the extent of the infection. In a somewhat different category is the use of such preparations in order to prevent secondary bacterial infection in the common cold and thus reduce its duration. This form of treatment has been favourably reported on, and seems justifiable in so far as these reports are correct. Sulphathiazole, owing to its lower solubility and thus more persistent action as well as its greater antibacterial activity, is more useful than sulphanilamide for these purposes.

Combined Action of Penicillin and Sulphonamides

Q.—*(a) Whitby, in the "Practitioner" (1947, 159, 239), states that penicillin and the sulphonamides have a directly contrary action, in so far as the former prevents the passage of glutamic acid through the cell wall of the organism, while the sulphonamides produce an abnormal accumulation of glutamic acid within the organism. From this one must assume that penicillin and sulphonamides should not be used in conjunction. Has this been confirmed?*

(b) What are the advantages of giving penicillin and a sulphonamide simultaneously, and in what condition is this combined therapy of value?

A.—Interference with glutamic acid metabolism is not established as a final and complete explanation of the mode of action of either penicillin or the sulphonamides. The recorded facts are, however, of interest and importance, and may be regarded as pieces in a jigsaw puzzle which has not yet been completed. In any case, the two facts are not evidence of a directly contrary action. It is not as though penicillin prevented the passage of glutamic acid while sulphonamides facilitated the passage. The facts are that: (1) penicillin prevents passage; (2) sulphonamides do not prevent passage through the cell wall, but prevent utilization when the glutamic acid is within the cell, so that abnormal accumulation results. There is no clinical evidence that a combined use of penicillin and a sulphonamide defeats its own ends or that these substances are antagonistic or incompatible. Theoretically the main argument for combined use is in the case of mixed infections, where one organism—e.g., staphylococcus—may be relatively resistant to sulphonamides and another—e.g., *Bact. coli*—resistant to penicillin.

Ligation of the Common Femoral Vein

Q.—*(a) Ligation of the common femoral vein is stated to be often employed in cases of post-operative venous thrombosis of the lower limb in America. Is the ligature applied proximal to the entrance of the long saphenous? If so, what are the after-effects on the venous return, and what course does the return take?*

(b) Is there a condition of incompetence of the deep veins of the lower limb? Under what circumstances would such a state be diagnosed, and could this operation be performed for it?

A.—(*a*) The ligature is as a rule applied below the saphenous opening unless the saphenous vein is thrombosed, when it is placed above. Some prefer to go even lower and ligate below the deep femoral junction. Whatever the position of the ligature, there is no difficulty about venous return: even ligation of the inferior vena cava does not cause any difficulty. Naturally if thrombosis has occurred before the ligation, as is so often the case, then some permanent oedema and other changes will result. This must not be put down to the ligature, because it is found that ligation of the femoral vein in a normal leg produces no changes at all in venous return. Nature has been very generous with collaterals.

(*b*) There is a condition of deep incompetence, and it is diagnosed when complications, usually associated with varicose veins, are present, but varicose veins are either absent or not present in sufficient degree to explain the skin changes. There need not be a previous history of deep thrombosis.

Procaine in Asthma

Q.—*How is intravenous "novocain" used in cases of bronchial and cardiac asthma?*

A.—"Novocain" (procaine), by intravenous injection, has been used extensively in cases of bronchial asthma, particularly in France. It does not appear to have any advantage over the commoner antispasmodics, and there have been instances where aminophylline was successful in relieving an attack after procaine had failed. There is experimental evidence that procaine, administered intravenously, so modifies the bronchial musculature that it no longer responds to stimuli previously causing bronchoconstriction. It has been given in dilute solution—1 g. of procaine in 500 ml. of isotonic saline by intravenous drip lasting two hours—or, in more concentrated form, in doses of 5–10 ml. of a 1% solution in isotonic saline. References to its use in cardiac asthma have not been found.

Injection of Vitamin D in Psoriasis

Q.—*Some time ago I came across a reference to the use of daily injections of vitamin D in a series of cases of psoriasis, a large proportion being reported as having done well. Can you give me further details as to technique and length of treatment needed?*

A.—Several reports upon this subject in the last ten years have appeared, particularly in the American literature, but few have been favourable, and authorities are almost unanimous in rejecting the measure. The dosage of calciferol in these cases has varied between 50,000 and 400,000 i.u. daily, administered over the course of some months by mouth or by injection. The treatment is a dangerous one, carrying with it the risk of serious disturbance of calcium metabolism (a toxic rise of diffusible calcium) and of severe renal damage, and should not be employed for psoriasis. (Reference: G. E. Clarke, *Arch. Derm. Syph., Chicago*, 1940, **41**, 664.)

Dosage of Vaccines

Q.—*What is considered to be the correct dosage according to age of cholera vaccine, T.A.B., T.T., and typhus vaccine?*

A.—Although there is no general agreement about the gradation of doses of vaccine according to age, it is often recommended that for infections like the enteric group, cholera, and typhus the dose should be one-third to one-quarter of the adult dose for children under 5 years, and one-half the adult dose for children aged 5–15. Many authorities do not advise inoculation of children under 2 years against these infections, which are very rare or very mild in young children, but certificates of prophylactic inoculation for every immigrant irrespective of age are demanded by certain countries. In the case of tetanus the risk of infection in young children may be considerable in some countries, and not less than one-half the adult dose of tetanus toxoid, which is as a rule free of any reaction, should be given. It must be remembered that in order to establish a good basal immunity the first dose (the primary stimulus) must be adequate to sensitize the tissues, and that children under 1 year probably give a poorer response to antigenic stimulus than older children or adults.

Passage of Antibodies from Foetus to Mother

Q.—*Certain neonatal diseases are now ascribed to the passage of maternal agglutinins or other antibodies through the placenta; can maternal toxaemia, with its resemblance when acute to the effects of an incompatible transfusion, be similarly related to the passage of antibodies from the foetus to the mother? It is said that the newborn do not develop definite blood groups at first, but does this exclude the possibility that they produce antibodies in their serum?*

A.—The blood groups of newborn infants are quite fully displayed at birth so far as concerns the agglutinogen content of the red cells. The serum of the newborn, however, does not display the reciprocal relations of agglutinogens and agglutinins characteristic of the adult, any iso-antibodies present in the infant's serum being derived from the mother's circulation. The infant gradually develops its own appropriate iso-agglutinins during the first year of life. The capacity of the

foetus to produce antibodies of any kind seems to be very limited. The suggestion that maternal toxaemia may be due to the passage of antibodies developed in the foetus through the placenta into the mother has been made but has never been substantiated, and the nature of the alleged antigen or antibody is quite hypothetical. There is no proof, for example, that an A mother transmits A substance to an O child, and no evidence that the child reacts to it by producing anti-A. If maternal toxaemia is related to an antigen-antibody reaction it is far more likely that the antigen is derived from the foetus and the antibody produced by the mother, the reaction perhaps being in the nature of a hypersensitive crisis. There is a recent discussion of this problem in *Nordisk Medicin*, 1947, **36**, 2281.

Testosterone in Angina Pectoris

Q.—*Is it true that the Americans have had great success in the treatment of angina pectoris with testosterone?*

A.—There is no uniformity of opinion regarding the value of testosterone propionate in the treatment of angina pectoris either in America or in this country. For example, Waldman (*J. clin. Endocrinol.*, 1945, **5**, 305) claimed that seven out of ten patients treated by him were improved symptomatically. Patients with stable electrocardiograms were more responsive to this treatment than those whose records showed progressive deterioration. On the hand, Levine and Sellers (*Amer. J. med. Sci.*, 1946, **212**, 7) stated that neither the intramuscular nor the sublingual administration of testosterone propionate was of any value in the treatment of angina. These authors said that the treatment was useful in relieving the chest discomfort at the male climacteric or the similar precordial ache of neurocirculatory asthenia in the same age group as patients with angina.

Epileptic Fits at Menstrual Period

Q.—*What is the relation between epilepsy and menstruation? I have a patient who has fits at every menstrual cycle, beginning two or three days before the period. They first started after the birth of her child six years ago, and during the last six months have become worse; at times she has a transient unconsciousness. I have tried phenobarbitone 1/2 gr. (32 mg.) twice daily, which lessened their severity. Epanutin, 1½ gr. (0.1 g.), taken two weeks before the period, prevented the fits at her next period but not after that. What do you suggest?*

A.—The onset of epileptic fits is sometimes precipitated by pregnancy or lactation. Moreover, fits are commonly aggravated by menstrual periods and may appear only at that time; one of the possible reasons for this is the tendency to retention of sodium and fluid in the tissues which is a feature of the premenstrual phase. Restriction of fluid intake to 1 pint (0.57 litre) in 24 hours and elimination of salt from the diet for ten days before each period should be tried. Ammonium chloride, 10 gr. (0.65 g.) thrice daily, could be given at the same time. If such measures fail, the regular administration of sedatives before each period will have to be continued.

Hagner's Operation

Q.—*Is Hagner's operation for stenosis in the tail of the epididymis often performed? Is it successful?*

A.—Hagner published such excellent results that surgeons in this country are now using his technique. The operation is worth doing since it is the only possible remedy for this kind of blockage. It is difficult to give statistics of successes, as patients disappear and the final result is not known. It is probable that in about one in four cases sperms reappear in the semen. This does not of course mean that the wife necessarily conceives.

Effect of Heat on B.S.R.

Q.—*Citrated blood for a B.S.R. was put into two Westergren tubes and one was placed in the middle of a cold room and the other near to a radiator. The first tube read 3 mm. after one hour, and the warmer tube read 28 mm. How can correction be made for temperature when doing this test as a routine?*

A.—The effect on B.S.R. readings of variations in room temperature such as ordinarily occur is so slight that no correction is necessary. The very great difference between the two readings quoted is quite unaccountable on this basis: by way of illustrating this, two Westergren tubes of the same blood were set up at room temperature (then 22° C.) and in an incubator (37° C.). The readings at one hour were 7 and 12 mm., respectively. The questioner may care to make some further tests himself at observed temperatures.

Vitamin B and Growth of Hair

Q.—*Can p-aminobenzoic acid affect the growth of hair? A woman with post-influenzal debility and a doubtful thyrotoxicosis was given 100 mg. of p-aminobenzoic acid three times a day after meals. Fourteen days later her hair, which had been grey and lank for some years, was growing more lustrous and darker. Has this compound any effect on the growth and pigmentation of the hair?*

A.—The observation which has been made is interesting. There is no experimental evidence that *p*-aminobenzoic acid has any effect on the growth of hair, but such an effect is not inconceivable. Hairlessness in mice has been shown to result from a deficiency of inositol, and it might well be that a deficiency of *p*-aminobenzoic acid could lead to poor hair growth. More patients must be tried; the treatment can at least do no harm.

NOTES AND COMMENTS

Ringworm of Scalp.—Dr. A. J. E. BARLOW (Huddersfield) writes: In view of the considerable correspondence on this subject I hope that the following notes may be of interest. We have at present an epidemic of *Tinea capitis* in Huddersfield, and as the result of co-operation between the public health department and the Huddersfield Royal Infirmary a large series of cases has been obtained in the last eight months. All school-children and all home contacts have been regularly inspected with Wood's light and approximately 175 cases have been obtained. Culture has been done in each case and all have produced *M. audouini* with the exception of one *M. felineum*. Recent cultures have been confirmed by Dr. J. T. Duncan.

While we have dealt with some cases by *x*-ray epilation we have at the same time made an attempt to assess the effectiveness of local therapy without epilation. Among others the following local applications have been used: (1) 5% salicyl anilide in a carbowax base; (2) 10% salicylic acid in a turpentine emulsion; (3) phenyl mercuric nitrate and several other compounds in bases incorporating new emulsifying agents.

We have treated 150 cases in this way, and while our results are as yet incomplete we find that we have now 25 cases which for three consecutive examinations at monthly intervals in Wood's light have not fluoresced. A further 45 cases have been negative for a period of less than three months. The remaining 80 cases consist of 20 that have started treatment in the last six weeks; 16 in which local therapy has been abandoned for *x*-ray epilation; and 44 which show signs of improvement, or in which the parents are unwilling to allow epilation.

It is much too early to express any opinion, but it is hoped to publish the series in detail at a later date. There are, however, certain practical points about diagnosis and treatment which may be of help to anyone thinking of undertaking local treatment. (1) All cases should be confirmed by culture, preferably by someone experienced in the work. (2) All cases should be examined regularly in Wood's light and should not be pronounced cured until at least three monthly examinations have proved negative. (3) It should not necessarily be assumed that because cases have responded to a certain line of treatment the local application has penetrated into the depths of the hair follicle. We have several cases which have either cleared spontaneously or on therapy in which there could have been little or no penetration; and attempts to demonstrate penetration, even in cases which are clearing, have proved disconcerting. (4) Unless the parents are sensible and co-operative local treatment at present is likely to prove a waste of time.

Our general impressions are similar to those of Dr. R. T. Brain (Jan. 10, p. 86), that in the near future it is likely a rational and effective method of local treatment will be elaborated, but that at present *x*-ray epilation is a less time-consuming and more reliable method.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.
ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads, Westcent, London.*
MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. EUSTON 2111. Telegrams: *Medisecra, Westcent, London*
B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.